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ACTIVITIES REPORT
REGISTRY OF TUMORS IN LOWER ANIMALS:

1974 SUPPLEMENT

JOHN C. HARSHBARGER, DIRECTOR

PREPARED FOR DISTRIBUTION BY:
REGISTRY OF TUMORS IN LOWER ANIMALS
NATIONAL MUSEUM OF NATURAL HISTORY
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WASHINGTON, D.C. 20560

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The activities of the Registry increased in all areas during 1974 due largely to an increased concern over the effects of environmental pollution, coupled with an increased interest in the cause and significance of neoplasia in invertebrate and cold-blooded vertebrate animals.

As pointed out in the previous activities report, copies of which are still available, there are numerous proven and hypothesized benefits from studying neoplasms in lower animals including the discovery of: new carcinogens, indicators of carcinogens in the environment, vectors of cancer viruses, reservoirs of chemical carcinogens, multipliers of carcinogens in the food chain, models for the study of mechanisms of neoplastic transformation, sources of anti-cancer compounds, and models for screening the carcinogenicity and mutagenicity of new chemicals (less than half of the new chemicals which go into major production each year are tested for carcinogenicity due largely to the cost and other logistics of using the mammalian test systems).

SPECIMEN COLLECTION

The specimen collection is the most important component of the Registry's mission and we invite contributions of any material showing neoplasms or related diseases in cold-blooded vertebrates and invertebrates. Almost all of the cases received add to the information on geographic and phylogenetic distribution of these diseases and their manifestation within the organism. In addition, many of the cases have special significance as they relate to one of the benefits mentioned in the previous section. Unfortunately a report such as this does not portray the total significance of each case, but in conjunction with the literature it will give one a pretty good idea of where we stand.

In 1974 the specimen collection increased by 191 accessions, which represented an eight percent acceleration in rate over the previous reporting period. The complete list of specimens with the diagnosis, name of contributor, and pertinent reference when applicable, is included in this report. The addresses of contributors are given at the end.

Table I gives a breakdown of the major phylogenetic groups with the ratio of neoplastic to non-neoplastic lesions. As in previous years the bulk of the specimens were fish and amphibians with mollusks leading the invertebrates. Approximately two-thirds of the diagnosed material was neoplastic, but mollusca and arthropoda continue to be the only invertebrate phyla from which verifiable neoplasms are known.

REFERENCE LIBRARY

Approximately 300 papers were added to the comprehensive library on neoplasms in lower animals bringing the total number to over 2,800. Except for very recent acquisitions and some older articles that need to be translated, all papers have been abstracted by selected key words and computerized. At the conclusion of a thorough editing, now in progress, the entire file will be made available as a publication.

TABLE I

DISTRIBUTION OF LESIONS AMONG SPECIMENS RECEIVED

Phylogenetic Group	TYPE OF DISEASE		
	Neoplastic	Non-Neoplastic	Not Diagnosed
Reptile	3	10	0
Amphibian	46	12	2
Bony fish	66	18	10
Shark	1	0	0
Tunicate	0	3	0
Mollusks	6	10	0
Arthropods	1	1	0
Echinoderms	0	1	0
Nematodes	0	1	0
Total	123 (64%)	56 (29%)	12 (6%)
Percent of those diagnosed	(69%)	(31%)	
			191 (ca 100%)

PAPERS PUBLISHED SINCE THE PRECEDING ACTIVITIES REPORT

- Harshbarger, J.C. Radiation, Neoplasms, Carcinogenic Chemicals, and Insects. In: Insect Diseases, G.E. Cantwell (ed.), 2(Chapter 8): 377-416. Marcel Dekker, Inc.: New York. 1974.
- Harshbarger, J.C. Integumentary Papillomas and Carcinomas in Fish. Symposium No. 43: Environmental Carcinogens in Feral Aquatic Animals. In: Abstracts: Xith International Cancer Congress, Florence, [Italy], 20-26 October 1974, 1: 218-219. Casa Editrice Ambrosiana: Milan. 1974.
- Harshbarger, J.C. The Study of Invertebrate and Poikilothermic Vertebrate Neoplasms by the Registry of Tumors in Lower Animals. Bull. Soc. Pharmacol. Environ. Pathol., 2(3): 10-14. 1974.
- Couch, J., G. Gardner, J.C. Harshbarger, M.R. Tripp, and P.P. Yevich. Histological and Physiological Evaluations in Some Marine Fauna. In the Section, "Pathological Bioassays," edited by G. La Roche of Marine Bioassays: Workshop Proceedings, 1974, pp. 156-173. Marine Technology Society: Washington, D.C. 1974.
- Dawe, C.J. and J.C. Harshbarger. Neoplasms in Feral Fishes: Their Significance to Cancer Research. In: The Pathology of Fishes, W.E. Ribelin and G. Migaki (ed.), Chapter 35, pp. 871-894. The University of Wisconsin Press: Madison. 1975.

OTHER ACTIVITIES IN 1974

1. Participated in a Marine Bioassays Workshop sponsored by the Marine Technology Society (MTS) with support from the U.S. Environmental Protection Agency and the American Petroleum Institute (see above; paper no. 4). The iii + 308 page Proceedings were published in 1974 and are available from MTS, 1730 M Street, N.W., Washington, D.C., 20036, for \$18.00.
2. Hosted the First Marine Biomedical Workshop on 2 and 3 May 1974. The Proceedings will not be published as a discrete unit.
3. Presented the paper, "A Gamut of Oral Neoplasms in Cunners, Tautogolabrus adspersus, (Osteichthyes; Perciformes; Labridae) Ranging From an Epidermal Papilloma to an Odontogenic Ameloblastoma," at the "Symposium on Neoplasms in Aquatic Animals as Indicators of Environmental Carcinogens" held in Cork, Ireland, on 15-17 October 1974. The Symposium was sponsored by The International Union Against Cancer (UICC) and the Proceedings will be published in Volume 21 of the Series, Progress in Experimental Tumor Research, edited by F. Homburger for S. Karger.
4. Served as Secretary of the UICC Committee on Comparative Oncology (chaired by C.J. Dawe of the U.S. National Cancer Institute).
5. Conducted research on integumentary neoplasms in cunners, croakers, catfish, and salamanders under the auspices of the above Committee.

6. Served on the Interagency Collaborative Group on Environmental Carcinogenesis (chaired by H.F. Kraybill of the U.S. National Cancer Institute).
7. Served as Secretary for the Society for Invertebrate Pathology.
8. Served as a member of the Committee on Animal Models and Genetic Stocks of the National Research Council of the National Academy of Sciences.
9. Addressed the Society of Pharmacological and Environmental Pathologists (see page 3; paper no. 3).
10. Participated in a cooperative investigation of the etiology of several diseases of bivalve mollusks, supported in part by the U.S. Food and Drug Administration.
11. Presented a paper (see page 3; paper no. 2) at the XIth International Cancer Congress held in Florence, Italy, on 20-26 October 1974.

PERSONNEL

The Project Officer for the contract is Dr. Clyde J. Dawe, Head, Comparative Oncology Section, Laboratory of Pathology, National Cancer Institute, National Institutes of Health, Bethesda, Maryland, 20014.

The Principal Investigator for the contract is Dr. David L. Pawson, Chairman, Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C., 20560.

The staff of the Registry is as follows:

Director	- John C. Harshbarger, Ph.D.
Electron Microscopist	- Sing Chen Chang, Ph.D.
Registrar	- Phyllis M. Schellenger, B.S.
Histopathology Technician	- Linda J. Cullen, B.A.
Bibliographers	- Judith E. Foster, B.S. and Marilyn S. Slatick, B.S.

ACCESSIONS

- RTLA 888. Spot, Leiostomus xanthurus
Material: One gross specimen with large internal growth
Diagnosis: Microsporidian (Pleistophora sp.) granuloma
Submitter: R. M. Overstreet
- RTLA 889. Spot, Leiostomus xanthurus
Material: One gross specimen with large internal growth
Diagnosis: Microsporidian (Pleistophora sp.) granuloma
Submitter: R. M. Overstreet
- RTLA 890. Spot, Leiostomus xanthurus
Material: One gross specimen with large external growth
Diagnosis: Microsporidian (Pleistophora sp.) granuloma
Submitter: R. M. Overstreet
- RTLA 891. Spot, Leiostomus xanthurus
Material: One piece of tissue removed from a growth located behind the right pectoral fin
Diagnosis: Microsporidian (Pleistophora sp.) granuloma
Submitter: R. M. Overstreet
- RTLA 892. Spot, Leiostomus xanthurus
Material: One gross specimen with large internal growth
Diagnosis: Microsporidian (Pleistophora sp.) granuloma
Submitter: R. M. Overstreet
- RTLA 893. Amazon molly, Poecilia formosa
Material: Six lateral hemisections
Diagnosis: Exhuberant invasive thyroid hyperplasia versus carcinoma; visceral granulomas
Submitter: R. W. Hart
- RTLA 894. Amazon molly, Poecilia formosa
Material: Twelve lateral hemisections
Diagnosis: Exhuberant invasive thyroid hyperplasia versus carcinoma; visceral granulomas
Submitter: R. W. Hart
- RTLA 895. Amazon molly, Poecilia formosa
Material: Eleven lateral hemisections
Diagnosis: Exhuberant invasive thyroid hyperplasia versus carcinoma; visceral granulomas
Submitter: R. W. Hart
- RTLA 896. Amazon molly, Poecilia formosa
Material: Twelve lateral hemisections
Diagnosis: Exhuberant invasive thyroid hyperplasia versus carcinoma; visceral granulomas
Submitter: R. W. Hart

- RTLA 897. Amazon molly, Poecilia formosa
Material: Ten lateral hemisections
Diagnosis: Exhuberant invasive thyroid hyperplasia versus carcinoma;
visceral granulomas
Submitter: R. W. Hart
- RTLA 898. Amazon molly, Poecilia formosa
Material: Thirty-four lateral hemisections
Diagnosis: Exhuberant invasive thyroid hyperplasia versus carcinoma;
visceral granulomas
Submitter: R. W. Hart
- RTLA 899. Rainbow trout, Salmo gairdneri
Material: Three pieces of tissue from a large subdermal growth located along the lateral line below and somewhat posterior to the dorsal fin; 2 microscope slides
Diagnosis: Undifferentiated mesenchymal sarcoma
Submitter: C. E. Smith
- RTLA 900. Rainbow trout, Salmo gairdneri
Material: One microscope slide
Diagnosis: Nephroblastoma
Submitter: C. E. Smith
- RTLA 901. Rainbow trout, Salmo gairdneri
Material: Eight pieces of tissue: spleen, liver, kidney, and thymus; 5 microscope slides
Diagnosis: Lymphosarcoma
Submitter: C. E. Smith
- RTLA 902. Chum salmon, Oncorhynchus keta
Material: One paraffin block
Diagnosis: Nephroblastoma
Submitter: T. P. T. Evelyn
- RTLA 903. Chinook salmon, Oncorhynchus tshawytscha
Material: Almost the complete head with both pathologic and normal tissue; 1 color photograph
Diagnosis: Probable malignant lymphoma; tissue too autolyzed for definitive diagnosis
Submitter: G. R. Bell
- RTLA 904. Sockeye salmon (Kokanee), Oncorhynchus nerka
Material: Two pieces of kidney tissue; 2 microscope slides
Diagnosis: Granulocytic leukemia versus infection
Submitter: C. E. Smith
- RTLA 905A & B. Tiger salamander, Ambystoma tigrinum
Material: Two pieces of tissue; 1 color transparency
Diagnosis: 905A - Epidermal papilloma
905B - Intradermal melanophoroma
Submitter: F. L. Rose

- RTLA 906. Tiger salamander, Ambystoma tigrinum
Material: Four pieces of tissue; 2 color transparencies
Diagnosis: Intradermal melanophoroma
Submitter: F. L. Rose
- RTLA 907. Tiger salamander, Ambystoma tigrinum
Material: One piece of tissue; 1 color transparency
Diagnosis: Epidermal papilloma
Submitter: F. L. Rose
- RTLA 908. Tiger salamander, Ambystoma tigrinum
Material: One piece of tissue; 1 color transparency
Diagnosis: Epidermal papilloma
Submitter: F. L. Rose
- RTLA 909. Tiger salamander, Ambystoma tigrinum
Material: Four pieces of tissue; 1 color transparency
Diagnosis: Polypoid dermal fibroma
Submitter: F. L. Rose
- RTLA 910. Tiger salamander, Ambystoma tigrinum
Material: One piece of tissue; 1 color transparency
Diagnosis: Epidermal papilloma
Submitter: F. L. Rose
- RTLA 911. Tiger salamander, Ambystoma tigrinum
Material: One piece of tissue; 1 color transparency
Diagnosis: Epidermal papilloma
Submitter: F. L. Rose
- RTLA 912. Tiger salamander, Ambystoma tigrinum
Material: One piece of tissue; 1 color transparency
Diagnosis: Epidermal papilloma
Submitter: F. L. Rose
- RTLA 913. Tiger salamander, Ambystoma tigrinum
Material: One piece of tissue; 1 color transparency
Diagnosis: Epidermal papilloma
Submitter: F. L. Rose
- RTLA 914. Tiger salamander, Ambystoma tigrinum
Material: One piece of tissue; 1 color transparency
Diagnosis: Epidermal papilloma
Submitter: F. L. Rose
- RTLA 915. Tiger salamander, Ambystoma tigrinum
Material: One piece of tissue; 1 color transparency
Diagnosis: Epidermal papilloma
Submitter: F. L. Rose
- RTLA 916. Tiger salamander, Ambystoma tigrinum
Material: One piece of tissue; 1 color transparency
Diagnosis: Intradermal melanophoroma
Submitter: F. L. Rose

- RTLA 917. Largemouth bass, Micropterus salmoides
Material: One piece of testicular tissue; 1 black and white photograph
Diagnosis: Leiomyoma
Submitter: R. L. Herman
- RTLA 918. American smelt, Osmerus mordax
Material: Six microscope slides; 2 black and white photographs
Diagnosis: Cavernous hemangioma
Submitter: J. W. Cornick
- RTLA 919. Amphiuma means
Material: Two microscope slides
Diagnosis: Granuloma in response to some crystalline material;
possibly urates
Submitter: M. Balls
- RTLA 920. Leopard frog, Rana pipiens
Material: One gross specimen
Diagnosis: Widely disseminated septate fungal infection
Submitter: R. P. Dempster
- RTLA 921. Australian rock oyster, Crassostrea commercialis
Material: Two microscope slides
Diagnosis: Epidermal papilloma of mantle
Submitter: P. H. Wolf
- RTLA 922. Ocean pout, Macrozoarces americanus
Material: One piece of tissue from a growth on the lip; 1 microscope
slide; 2 color transparencies
Diagnosis: Epidermal papilloma
Submitter: R. E. Wolke
- RTLA 923. Cunner, Tautoglabrus adspersus
Material: One gross specimen with lip tumor
Diagnosis: Well-differentiated ameloblastic odontoma
Submitter: S. E. Shumway
- RTLA 924. Barred sand bass, Paralabrax nebulifer
Material: One gross specimen with deformed gill rakers
Diagnosis: Developmental anomaly
Submitter: M. J. Sherwood
- RTLA 925. California tonguefish, Symphurus atricauda
Material: One gross specimen
Diagnosis: Cutaneous hamartoma
Submitter: M. J. Sherwood
- RTLA 926. Dover sole, Microstomus pacificus
Material: One gross specimen with multiple growths predominantly on
the eyed side
Diagnosis: Epidermal papilloma
Submitter: M. J. Sherwood

- RTLA 927. Salt water crocodile, Crocodylus porosus
Material: Four pieces of liver tissue
Diagnosis: Severe fatty metamorphosis of the liver
Submitter: J. C. Harshbarger and M. Landolt
- RTLA 928. Rainbow trout (Steelhead), Salmo gairdneri
Material: A piece of body wall with a gelatin-like growth between the skin and underlying muscle
Diagnosis: Fibrosarcoma
Submitter: G. R. Bell
- RTLA 929. Walleye, Stizostedion vitreum vitreum
Material: Two nodules in skin
Diagnosis: Fibromas with foci of ossification associated with lymphocystis which occurred elsewhere in the same fish
Submitter: E. Enamait
- RTLA 930. Oyster, Ostrea lurida
Material: Four microscope slides
Diagnosis: Diffuse mesenchymal sarcoma
Submitter: M. C. Mix
- RTLA 931. Rainbow trout (Steelhead), Salmo gairdneri
Material: One microscope slide from a gill tumor
Diagnosis: Neoplasm of bipotential gill epithelium, manifest in some areas as an ameloblastoma and in other areas as a gill arch epithelioma
Submitter: H. Wolf
- RTLA 932. Rainbow trout, Salmo gairdneri
Material: Fourteen microscope slides; 1 color photograph
Diagnosis: Chloroma
Submitter: H. Wolf
- RTLA 933. Drosophila melanogaster
Material: Two microscope slides
Diagnosis: Prohemocytic leukemia
Submitter: E. A. F. Gateff
- RTLA 934. Carp, Cyprinus carpio
Material: Seventy-four microscope slides
Diagnosis: Sertoli cell tumor
Submitter: R. Sonstegard
- RTLA 935. "Ishimochi," Argyrosomus argentatus
Material: Nine black and white photographs; 3 paraffin blocks; six microscope slides
Diagnosis: Melanoma
Submitter: I. Kimura
Reprint: Kimura, Ikuro et al. Melanoma on the skin in a teleost fish, Argyrosomus argentatus. Abstracts: XIth International Cancer Congress, Florence, Italy, 20-26 October 1974, 2: 174-175. 1974.

- RTLA 936. Firebellied newt, Cynops pyrrhogaster
Material: One microscope slide
Diagnosis: Epidermal papilloma
Submitter: S. V. Bryant
Reprint: Bryant, Susan V. Spontaneous Epidermal Tumor in an Adult Newt, Cynops pyrrhogaster. Cancer Res., 33: 623-625. 1973.
- RTLA 937. Northern pike, Esox lucius
Material: Two gross specimens irradiated with 400 R, one of which was also covered with cutaneous black spots, plus an untreated control
Diagnosis: Black spot disease (granulomas) due to encysted metacercaria presumably of Neodiplostimum cuticola. Blood picture from irradiated fish in normal range.
Submitter: E. R. Brown
- RTLA 938. Northern spiky dogfish, Squalus blainvilli
Material: Large growth with metastases and some surrounding normal liver; 3 color transparencies
Diagnosis: Probable neurilemmoma (Schwannoma)
Submitter: P. M. Hine
- RTLA 939. Snapper, Chrysophrys auratus
Material: Portion of backbone with a large ovoid growth deriving from the area of the backbone
Diagnosis: Mycotic granuloma
Submitter: P. M. Hine
- RTLA 940. Chinook salmon, Oncorhynchus tshawytscha
Material: A large ovarian mass (solid growth adjacent to the ovary) and roe
Diagnosis: Normal testis; fish is bisexual
Submitter: J. G. Hnath
- RTLA 941. Butterfly fish
Material: One gross specimen with black growth involving second and third dorsal spines
Diagnosis: Benign melanoma arising from dermal melanophores
Submitter: A. C. Smith
- RTLA 942. Rainbow trout (Steelhead), Salmo gairdneri
Material: A growth and muscle from abdominal wall
Diagnosis: Neurofibroma (Schwannoma)
Submitter: G. R. Bell
- RTLA 943. Armored catfish, Corydoras sp.
Material: Three microscope slides of the spinal cord
Diagnosis: Parasitized by Myxosporida (Myxobolus sp.)
Submitter: G. E. Cosgrove
- RTLA 944. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with 4 skin lesions
Diagnosis: 1, 3, & 4 - Epidermal papilloma; 2 - normal variation
Submitter: F. L. Rose

- RTLA 945. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with 3 skin lesions
Diagnosis: 1 - Early intradermal melanocytoma; 2 - epidermal papilloma; 3 - epidermal hyperplasia
Submitter: F. L. Rose
- RTLA 946. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with 4 skin lesions
Diagnosis: 1, 2, & 4 - Epidermal papilloma; 3 - epidermal inclusions cysts
Submitter: F. L. Rose
- RTLA 947. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with distended abdomen
Diagnosis: Paraovarian serous cyst
Submitter: F. L. Rose
- RTLA 948. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with 2 skin lesions
Diagnosis: 1 - Epidermal papilloma; 2 - intradermal melanocytoma
Submitter: F. L. Rose
- RTLA 949. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with 4 skin lesions
Diagnosis: 1 & 3 - Intradermal melanocytoma; 2 & 4 - outer (papillary) layer of dermis is absent
Submitter: F. L. Rose
- RTLA 950. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with 5 skin lesions
Diagnosis: 1, 3 & 4 - Intradermal melanocytoma; 2 - epidermal melanocytoma; 5 - invasive dermal melanocytoma
Submitter: F. L. Rose
- RTLA 951. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with multiple skin lesions
Diagnosis: Epidermal hyperplasia
Submitter: F. L. Rose
- RTLA 952. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with a skin lesion
Diagnosis: Epidermal papilloma
Submitter: F. L. Rose
- RTLA 953. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with a skin lesion
Diagnosis: Intradermal melanocytoma
Submitter: F. L. Rose
- RTLA 954. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with a skin lesion
Diagnosis: Invasive dermal melanocytoma
Submitter: F. L. Rose

- RTLA 955. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen
Diagnosis: Ectopic lung
Submitter: F. L. Rose
- RTLA 956. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with a skin lesion
Diagnosis: Intradermal melanocytoma
Submitter: F. L. Rose
- RTLA 957. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with 3 skin lesions
Diagnosis: 1 - Exceptionally thin dermis; 2 - indeterminate;
3 invasive dermal melanocytoma
Submitter: F. L. Rose
- RTLA 958. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with 4 skin lesions
Diagnosis: 1 - Thin dermis; 2 - epidermal papilloma; 3 - intradermal
melanocytoma; 4 - intradermal fibroma
Submitter: F. L. Rose
- RTLA 959. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with cyst on gill
Diagnosis: Hematoma
Submitter: F. L. Rose
- RTLA 960. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with skin lesions
Diagnosis: Polycystic epidermal papilloma; epidermal papilloma;
epidermal inclusion cysts
Submitter: F. L. Rose
- RTLA 961. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with multiple skin lesions
Diagnosis: Epidermal inclusion cysts
Submitter: F. L. Rose
- RTLA 962. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with a skin lesion
Diagnosis: Intradermal melanocytoma
Submitter: F. L. Rose
- RTLA 963. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with a skin lesion
Diagnosis: Intradermal melanocytoma
Submitter: F. L. Rose
- RTLA 964. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with small white spot on tail
Diagnosis: Indeterminable due to postmortem sloughing of epidermis
Submitter: F. L. Rose

- RTLA 965. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with papillary skin lesions
Diagnosis: Indeterminable due to postmortem sloughing of epidermis
Submitter: F. L. Rose
- RTLA 966. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with a skin lesion
Diagnosis: Early intradermal melanocytoma
Submitter: F. L. Rose
- RTLA 967. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with a skin lesion
Diagnosis: Early intradermal melanocytoma
Submitter: F. L. Rose
- RTLA 968. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with a skin lesion
Diagnosis: Invasive dermal melanocytoma
Submitter: F. L. Rose
- RTLA 969. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with a skin lesion
Diagnosis: Invasive dermal melanocytoma
Submitter: F. L. Rose
- RTLA 970. Red-footed tortoise, Geochelone carbonaria
Material: Two microscope slides
Diagnosis: Parathyroid adenoma
Submitter: F. L. Frye
- RTLA 971. Brown bullhead, Ictalurus nebulosus
Material: One microscope slide
Diagnosis: Epidermal hyperplasia versus epidermal papilloma
Submitter: J. L. Gaines, Jr.
- RTLA 972. Angelfish, Pterophyllum scalare
Material: One gross specimen; 2 black and white photographs
Diagnosis: Fibropapillomatous polyps engulfing normal tooth buds (germs) and associated with underlying new bone formation
Submitter: P. M. Hine
- RTLA 973. Sea hare, Aplysia californica
Material: Two opaline glands -- one pathologic and one normal
Diagnosis: Mycotic granuloma
Submitter: D. O. Carpenter
Reprint: [Classic article] Eales, N. B. Transactions of the Liverpool Biological Society, Vol. 35, pp. 183-266. 1921.
- RTLA 974. Rainbow trout, Salmo gairdneri
Material: One microscope slide of gill tumor
Diagnosis: Basal cell papilloma versus ameloblastic epithelioma
Submitter: R. J. Roberts

- RTLA 975. Western fence lizard, Sceloporus occidentalis
Material: One microscope slide (liver, kidney and heart tissue)
Diagnosis: Lower nephron nephrosis
Submitter: F. L. Frye
- RTLA 976. Rainbow trout, Salmo gairdneri
Material: One piece of tissue; 2 microscope slides
Diagnosis: Leiomyoma
Submitter: J. van de Kerkhoff
- RTLA 977. Hawksbill sea turtle, Eretmochelys imbricata
Material: A growth removed from the left fore flipper
Diagnosis: Bacterial granuloma
Submitter: D. Allen and R. Lloyd
- RTLA 978. Starfish, Asterina sp.
Material: Part of D ray with a raised growth
Diagnosis: Developmental anomaly
Submitter: F. H. C. Hotchkiss
- RTLA 979. Atlantic sturgeon, Acipenser oxyrhynchus
Material: One microscope slide
Diagnosis: Parafoollicular serous cyst adjacent to a smaller
perifollicular pseudocyst
Submitter: J. A. Quick, Jr. and J. A. Huff
- RTLA 980. Atlantic sturgeon, Acipenser oxyrhynchus
Material: One microscope slide
Diagnosis: Perifollicular pseudocyst
Submitter: J. A. Quick, Jr. and J. A. Huff
- RTLA 981. Oyster, Ostrea lurida
Material: Six microscope slides
Diagnosis: Hematopoietic neoplasm
Submitter: M. C. Mix
- RTLA 982. Cave isopod, Speocirolana bolivari
Material: Three gross specimens with sac-like growths
protruding between the 4th and 5th walking legs
Diagnosis: Possible distended abdomens of an ectoparasite
Submitter: T. E. Bowman
- RTLA 983. Australian rock oyster, Crassostrea commercialis
Material: Four microscope slides
Diagnosis: Hematopoietic neoplasm
Submitter: P. H. Wolf
- RTLA 984. Red rattlesnake, Crotalus ruber
Material: A portion of a large paralyzing mass located on the dorsum,
dorsal and lateral to the spinal column
Diagnosis: Undifferentiated sarcoma
Submitter: E. A. Holzinger

- RTLA 985. American crocodile, Crocodylus acutus
Material: Two microscope slides; 2 paraffin blocks
Diagnosis: Parasitized by Capillaria recurva
Submitter: E. Elkan
- RTLA 986. Eastern garter snake, Thamnophis sirtalis
Material: Two microscope slides
Diagnosis: Parasitized by Ophiotaenia perspicua
Submitter: E. Elkan
- RTLA 987. Emerald tree snake, Ahaetulla prasina
Material: Four microscope slides; 1 paraffin block
Diagnosis: Parasitized by Sphaerechinorhynchus (?) serpenticola
Submitter: E. Elkan
- RTLA 988. Atlantic salmon, Salmo salar
Material: Two tissue blocks
Diagnosis: Marked thyroid hyperplasia
Submitter: J. G. Hnath
- RTLA 989. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with cyst-like growth on head
Diagnosis: Subdermal serous cyst
Submitter: F. L. Rose
- RTLA 990. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with a skin lesion
Diagnosis: Dermal fibroma
Submitter: F. L. Rose
- RTLA 991. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with a skin lesion
Diagnosis: Dermal fibrosarcoma
Submitter: F. L. Rose
- RTLA 992. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with 2 skin lesions
Diagnosis: Epidermal papilloma
Submitter: F. L. Rose
- RTLA 993. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with 4 skin lesions
Diagnosis: 1 & 3 - Epidermal papilloma; 2 - pending; 4 - intradermal melanocytoma
Submitter: F. L. Rose
- RTLA 994. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with 2 skin lesions
Diagnosis: 1 - Intradermal fibroma; 2 - epidermal papilloma
Submitter: F. L. Rose
- RTLA 995. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with 2 cyst-like growths on head
Diagnosis: 1 & 2 - Serous cysts
Submitter: F. L. Rose

- RTLA 996. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with 4 skin lesions
Diagnosis: 1 - Subdermal serous cyst; 2 - hyperplastic stratum papillosum of dermis; 3 intradermal fibroma; 4 - intradermal melanophoroma
Submitter: F. L. Rose
- RTLA 997. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with a skin lesion
Diagnosis: Probable epidermal papilloma
Submitter: F. L. Rose
- RTLA 998. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with cyst-like growth
Diagnosis: Subdermal serous cyst
Submitter: F. L. Rose
- RTLA 999. Tiger salamander, Ambystoma tigrinum
Material: One gross specimen with a skin lesion
Diagnosis: Dermal myxosarcoma
Submitter: F. L. Rose
- RTLA 1000. Sea bream, Sparus auratus
Material: One microscope slide; 1 black and white photograph
Diagnosis: Oral papillomatosis involving odontogenic epithelium and associated with marked proliferation of odontoblastic tissue
Submitter: I. Paperna
- RTLA 1001. Smallmouth bass, Micropterus dolomieu
Material: One microscope slide; 2 color transparencies
Diagnosis: Scarring probably due to an infection or to a physical or chemical injury
Submitter: H. Rothenbacher
- RTLA 1002. Chinook salmon, Oncorhynchus tshawytscha
Material: An anal fin and surrounding musculature bearing a growth
Diagnosis: Mesenchymal neoplasm; cell type indeterminable due to poorly preserved tissue
Submitter: P. M. Hine
- RTLA 1003. Rainbow trout, Salmo gairdneri
Material: One microscope slide; 1 paraffin block; 14 color transparencies
Diagnosis: Nephroblastoma
Submitter: H. Wolf
- RTLA 1004. Clam, Macoma balthica
Material: Two microscope slides
Diagnosis: Highly invasive carcinoma of gill epithelium
Submitter: F. G. Kern
Reprint: Christensen, Darryl J., C. Austin Farley, and Frederick G. Kern. Epizootic Neoplasms in the Clam Macoma balthica (L.) From Chesapeake Bay. J. Natl. Cancer Inst., 52(6): 1739-1749. 1974.

- RTLA 1005. Hard-shell clam (Quahog), Mercenaria mercenaria
Material: Three microscope slides; 1 paraffin block
Diagnosis: Chlamydia infection in digestive diverticula
Submitter: S. V. Otto
- RTLA 1006. Hard-shell clam (Quahog), Mercenaria mercenaria
Material: One microscope slide; 1 paraffin block
Diagnosis: Chlamydia infection in digestive diverticula
Submitter: S. V. Otto
- RTLA 1007. Hard-shell clam (Quahog), Mercenaria mercenaria
Material: One microscope slide
Diagnosis: Gill inclusion disease
Submitter: S. V. Otto
- RTLA 1008A & B. Clam, Anodonta corpulenti
Material: Six clam hemisections -- 1 pathologic and 5 normal
Diagnosis: Hematopoietic response to bacterial infection
Submitter: G. E. Cosgrove
- RTLA 1009A & B. Eastern box turtle, Terrapene carolina
Material: A. Apical half of enlarged, dense, white right lung
B. Apical half of normal left lung
Diagnosis: Hyperplastic inflammatory or acute hypersensitivity reaction
Submitter: G. E. Cosgrove
- RTLA 1010. Pacific tree frog, Hyla regilla
Material: One microscope slide; 2 color transparencies
Diagnosis: Chondomyxoma
Submitter: F. L. Frye
- RTLA 1011. Lake trout, Salvelinus namaycush
Material: One microscope slide; a portion of growth found in the mouth, upper jaw area
Diagnosis: Ossifying myxofibroma
Submitter: T. P. T. Evelyn
- RTLA 1012. Northern pike, Esox lucius
Material: One microscope slide; a portion of a growth on top of the skull
Diagnosis: Malignant melanoma
Submitter: T. P. T. Evelyn
- RTLA 1013. Winter flounder, Pseudopleuronectes americanus
Material: One fish head with a smooth, spherical fluid-filled cyst emerging from the left eye socket and displacing the eye
Diagnosis: Serous cyst
Submitter: B. B. Collette and K. W. Collette
- RTLA 1014. Benthocomestes robustus
Material: Four gross specimens; one with growth above operculum -- 3 normal
Diagnosis: Protozoan cyst
Submitter: R. Schoknecht

- RTLA 1015. Ocean pout, Macrozoarces americanus
Material: Liver, heart, complete alimentary tract, gall bladder, testes with growth, and spleen
Diagnosis: Adenocarcinoma of the spermatic duct
Submitter: B. B. Collette
- RTLA 1016. Pacific garter snake, Thamnophis sirtalis
Material: One microscope slide
Diagnosis: Malignant chromophoroma
Submitter: F. L. Frye
- RTLA 1017. Root-knot nematode, Meloidogyne incognita
Material: Four black and white photographs showing caudal enlargements
Diagnosis: Teratoid anomalies
Submitter: R. M. Sayre
Reprint: Sayre, Richard M. Observations on Aberrant Root-Knot Nematode Larvae. Program & Abstracts of the Joint Meeting XIII Society of Nematologists VII Organization of Tropical American Nematologists, 18-23 August 1974, Riverside, California, p. 24, 1974.
- RTLA 1018. Sea peach, Halocynthia pyriformis
Material: Tunic lesion near siphon
Diagnosis: Injury and repair of tunic epithelium
Submitter: R. S. Anderson
- RTLA 1019. Sea peach, Halocynthia pyriformis
Material: One gross specimen with lesion near siphon
Diagnosis: Injury and repair of tunic epithelium
Submitter: R. S. Anderson
- RTLA 1020. Sea peach, Halocynthia pyriformis
Material: One gross specimen with teardrop-shaped extension below siphon
Diagnosis: Probable infectious lesion of tunic
Submitter: R. A. Anderson
- RTLA 1021. Amazon molly, Poecilia formosa
Material: Four microscope slides
Diagnosis: Marked thyroid hyperplasia versus thyroid carcinoma
Submitter: G. E. Cosgrove
- RTLA 1022. Chinook salmon, Oncorhynchus tshawytscha
Material: Three microscope slides
Diagnosis: Acute granulocytic leukemia
Submitter: W. T. Yasutake
- RTLA 1023. Chinook salmon, Oncorhynchus tshawytscha
Material: Three microscope slides
Diagnosis: Acute granulocytic leukemia
Submitter: W. T. Yasutake
- RTLA 1024. Tuxedo swordtail, Xiphophorus helleri
Material: Nine black and white photographs; 4 color transparencies; 3 microscope slides
Diagnosis: Melanoma
Submitter: T. Ishikawa

- RTLA 1025. Rockfish ("red snapper"), Sebastes sp.
Material: A large, soft mass of tissue on the lower jaw
Diagnosis: Dermal fibropapilloma
Submitter: G. R. Bell
- RTLA 1026. Lake trout, Salvelinus namaycush
Material: A growth protruding from the body wall
Diagnosis: Epidermal papilloma
Submitter: G. E. Hoskins
- RTLA 1027. Goldfish, Carassius auratus
Material: One specimen with greatly distended abdomen
Diagnosis: Multiloculated serous cyst of either mesenteric or ovarian origin
Submitter: W. G. Banfield
- RTLA 1028. Guppy, Poecilia reticulata
Material: Two microscope slides
Diagnosis: Marked thyroid hyperplasia (thyroid toxin type) coesixtent with visceral granulomas caused by acid-fast organisms
Submitter: S. Cohen
- RTLA 1029. Oyster, Ostrea lurida
Material: Two microscope slides
Diagnosis: Hematopoietic neoplasm
Submitter: M. C. Mix
- RTLA 1030. African toad, Bufo sp.
Material: Five microscope slides
Diagnosis: Hematopoietic neoplasm
Submitter: R. L. Snyder
- RTLA 1031. Northern pike, Esox lucius
Material: Ten microscope slides
Diagnosis: Lymphoma
Submitter: O. Ljungberg
Reprint: Winqvist, G., O. Ljungberg, and Birgitta Ivarsson. Electron Microscopy of Sarcoma of the Northern Pike (Esox lucius L). In: Unifying Concepts of Leukemia, Bibl. haemat. No. 39, R. M. Dutcher and L. Chieco-Bianchi (ed.), pp. 26-30, Karger, Basel, 1973.
- RTLA 1032. Northern pike, Esox lucius
Material: Three microscope slides
Diagnosis: Lymphoma
Submitter: O. Ljungberg
Reprint: [See RTLA 1031]
- RTLA 1033. Northern pike, Esox lucius
Material: Nine microscope slides
Diagnosis: Lymphoma
Submitter: O. Ljungberg
Reprint: [See RTLA 1031]

RTLA 1034. Northern pike, Esox lucius

Material: One microscope slide

Diagnosis: Lymphoma

Submitter: O. Ljungberg

Reprint: [See RTLA 1031]

RTLA 1035. Northern pike, Esox lucius

Material: One color photograph of gross specimen

Diagnosis: Lymphoma

Submitter: O. Ljungberg

Reprint: [See RTLA 1031]

RTLA 1036. European eel, Anguilla anguilla

Material: Five pieces of tissue

Diagnosis: A diffusely infiltrating, highly undifferentiated gastric neoplasm

Submitter: P. Chittino

RTLA 1037. Iguana iguana

Material: One microscope slide

Diagnosis: Hydronephrosis

Submitter: F. L. Frye

RTLA 1038. Coho salmon, Oncorhynchus kisutch

Material: Two pieces of tumor; 1 color photograph

Diagnosis: Neoplasm of mesenchymal tissue, but cell type indeterminable due to freezing artifacts

Submitter: G. E. Hoskins

RTLA 1039. Chinook salmon, Oncorhynchus tshawytscha

Material: One fish head including a piece of the right side which had been removed to show the growth

Diagnosis: Hematopoietic neoplasm (probable thymic lymphoma)

Submitter: G. E. Hoskins

RTLA 1040. Chinook salmon, Oncorhynchus tshawytscha

Material: Tumor with piece of gill attached

Diagnosis: Neoplasm of mesenchymal tissue, but cell type indeterminable due to freezing artifacts

Submitter: G. E. Hoskins

RTLA 1041. Snapper, Chrysophrys auratus

Material: One block of kidney tissue

Diagnosis: Granuloma

Submitter: P. M. Hine

RTLA 1042. Snapper, Chrysophrys auratus

Material: One block of kidney tissue; 2 microscope slides

Diagnosis: Granuloma

Submitter: P. M. Hine

RTLA 1043. Rainbow trout, Salmo gairdneri

Material: One block of kidney tissue; 4 microscope slides; 1 black and white photograph

Diagnosis: Malignant lymphoma

Submitter: P. M. Hine

- RTLA 1044. Brown trout, Salmo trutta
Material: Large growth with attached stomach; 4 microscope slides;
3 black and white photographs
Diagnosis: Leiomyoma
Submitter: P. M. Hine
- RTLA 1045. Coho salmon, Oncorhynchus kisutch
Material: Three pieces of tissue with lesions on the skin
Diagnosis: Abscess of scale pockets; etiology undetermined
Submitter: J. G. Hnath
- RTLA 1046. Lake trout, Salvelinus namaycush
Material: Tissue from a kidney tumor and from a tumor on gill arches
Diagnosis: Malignant well-differentiated lymphocytic lymphoma
Submitter: J. G. Hnath
- RTLA 1047. Yellow bullhead, Ictalurus natalis
Material: One gross specimen with black spots and raised areas
on the head
Diagnosis: Epidermal hyperplasia
Submitter: J. A. Couch and Bream Fishermen Association
- RTLA 1048. Yellow bullhead, Ictalurus natalis
Material: One gross specimen with black spots and raised areas
on the head
Diagnosis: Incipient epidermal papillomas
Submitter: J. A. Couch and Bream Fishermen Association
- RTLA 1049. Yellow bullhead, Ictalurus natalis
Material: One gross specimen with black spots and raised areas
on the head
Diagnosis: Epidermal hyperplasia
Submitter: J. A. Couch and Bream Fishermen Association
- RTLA 1050. Indian monitor lizard, Varanus bengalensis
Material: Two microscope slides
Diagnosis: Metaplastic bile ducts probably due to toxicosis
Submitter: F. L. Frye
- RTLA 1051. Hybrid frog, Rana palustris x pipiens
Material: One microscope slide
Diagnosis: Renal adenocarcinoma; induced by 5090 x G fraction
of Lucké tumor
Submitter: D. J. Mulcare
Reprint: Mulcare, Donald J. Non-Specific Transmission of the Lucké
Tumor. In: Biology of Amphibian Tumors, M. Mizell (ed.),
pp. 240-253, Springer-Verlag, New York, 1969.
- RTLA 1052. Leopard frog, Rana pipiens
Material: One microscope slide of blister on kidney
Diagnosis: Invasive tumor vesicle induced by virus rich 5090 x G
fraction of Lucké tumor
Submitter: D. J. Mulcare
Reprint: [See RTLA 1051]

- RTLA 1053. Hybrid frog, Rana pipiens x palustris
Material: One microscope slide of blister on kidney
Diagnosis: Non-invasive kidney vesicle induced by virus rich 5090 x G fraction of Lucké tumor
Submitter: D. J. Mulcare
Reprint: [See RTLA 1051]
- RTLA 1054. Pickerel frog, Rana palustris
Material: One microscope slide
Diagnosis: Involutated tumor vesicle induced by injecting an embryo with a 5090 x G fraction of Lucké tumor
Submitter: D. J. Mulcare
Reprint: [See RTLA 1051]
- RTLA 1055. Pickerel frog, Rana palustris
Material: One microscope slide
Diagnosis: Adenocarcinoma of mesonephros induced by 5090 x G fraction of Lucké tumor
Submitter: D. J. Mulcare
Reprint: [See RTLA 1051]
- RTLA 1056. Hybrid frog, Rana pipiens x palustris
Material: One microscope slide
Diagnosis: Solid renal adenocarcinoma induced by 5090 x G fraction of Lucké tumor
Submitter: D. J. Mulcare
Reprint: [See RTLA 1051]
- RTLA 1057A & B. Pickerel frog, Rana palustris
Material: Two microscope slides of 2 kidney lobes
Diagnosis: Renal adenocarcinoma induced in the adult by an implant of Lucké tumor into dorsal lymph space
Submitter: D. J. Mulcare
Reprint: [See RTLA 1051]
- RTLA 1058. Green frog, Rana clamitans
Material: One microscope slide
Diagnosis: Mesonephric adenocarcinoma induced by a 5090 x G fraction of Lucké tumor injected into the embryo
Submitter: D. J. Mulcare
Reprint: [See RTLA 1051]
- RTLA 1059. Sea bream, Sparus auratus
Material: One gross specimen with lip tumor
Diagnosis: Ameloblastic fibro-odontoma
Submitter: I. Paperna
- RTLA 1060. Sea bream, Sparus auratus
Material: One gross specimen with lip tumor
Diagnosis: Ameloblastic fibro-odontoma
Submitter: I. Paperna
- RTLA 1061. Sea bream, Sparus auratus
Material: Segment of fish head with lip tumor
Diagnosis: Ameloblastic fibro-odontoma
Submitter: I. Paperna

- RTLA 1062A, B, & C. Oyster, Ostrea lurida
Material: Tissue samples of gill, mantle, and digestive gland
Diagnosis: Normal
Submitter: M. C. Mix
- RTLA 1063. Walleye, Stizostedion vitreum vitreum
Material: Head with large growth posterior to the left eye
Diagnosis: Ossifying fibroma
Submitter: W. J. Buc
- RTLA 1064. Colorado River toad, Bufo alvarius
Material: Three pieces of tissue: liver, kidney, and possibly spleen
Diagnosis: Mycotic granuloma
Submitter: G. C. Blasiola, Jr.
- RTLA 1065. Hard-shell clam, Mercenaria mercenaria
Material: Fixed digestive diverticula tissue
Diagnosis: Chlamydia infection
Submitter: J. C. Harshbarger, S. C. Chang, and S. V. Otto
- RTLA 1066. Hard-shell clam, Mercenaria mercenaria
Material: Fixed digestive diverticular tissue
Diagnosis: Chlamydia infection
Submitter: J. C. Harshbarger, S. C. Chang, and S. V. Otto
- RTLA 1067. Hard-shell clam, Mercenaria mercenaria
Material: Fixed digestive diverticula tissue
Diagnosis: Chlamydia infection
Submitter: J. C. Harshbarger, S. C. Chang, and S. V. Otto
- RTLA 1068. Hard-shell clam, Mercenaria mercenaria
Material: Fixed digestive diverticula tissue
Diagnosis: Chlamydia infection
Submitter: J. C. Harshbarger, S. C. Chang, and S. V. Otto
- RTLA 1069. Ruin lizard, Lacerta sicula
Material: Six microscope slides
Diagnosis: Fibrosarcoma
Submitter: E. Elkan
- RTLA 1070. Trevally (jack?), Caranx lutescens
Material: Tissue around vent; 3 black and white photographs
Diagnosis: Neurofibrosarcoma
Submitter: P. M. Hine
- RTLA 1071. Pacific cod, Gadus macrocephalus
Material: One fish head with a tumorous growth on the inside
of the gill covers
Diagnosis: Parabronchial adenoma
Submitter: C. R. Forrester
- RTLA 1072. Pacific cod, Gadus macrocephalus
Material: One fish head with a tumorous growth on the inside
of the gill covers
Diagnosis: Parabronchial adenoma
Submitter: C. R. Forrester

RTLA 1073. Pacific cod, Gadus macrocephalus

Material: One fish head with a tumorous growth on the inside
of the gill covers

Diagnosis: Parabronchial adenoma

Submitter: C. R. Forrester

RTLA 1074. Pacific cod, Gadus macrocephalus

Material: One fish head with a tumorous growth on the inside
of the gill covers

Diagnosis: Parabronchial adenoma

Submitter: C. R. Forrester

RTLA 1075. Pacific cod, Gadus macrocephalus

Material: One fish head with a tumorous growth on the inside
of the gill covers

Diagnosis: Parabronchial adenoma

Submitter: C. R. Forrester

RTLA 1076. Pacific cod, Gadus macrocephalus

Material: One fish head with a tumorous growth on the inside
of the gill covers

Diagnosis: Parabronchial adenoma

Submitter: C. R. Forrester

RTLA 1077. Pacific cod, Gadus macrocephalus

Material: One fish head with a tumorous growth on the inside
of the gill covers

Diagnosis: Parabronchial adenoma

Submitter: C. R. Forrester

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<u>Oncorhynchus kisutch</u>	1038, 1045
<u>Oncorhynchus nerka</u>	904
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<u>Osmerus mordax</u>	918
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X

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Y

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TEAR OUT ACCESSION SHEET

PLEASE SUBMIT TO:

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National Museum of Natural History
Room W216-A
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Washington, D.C., 20560, USA

DATE RECD. _____
CONTRIBUTOR'S NO. _____
RTLA NO. _____
USNM NO. _____
NIH HISTOPATH NO. _____

COMMON NAME _____ FAMILY _____
PHYLUM _____ GENUS _____
CLASS _____ SPECIES _____
ORDER _____

CATEGORY: NEOPLASM _____ INFLAMMATION _____ INFECTION _____ PARASITIC _____ TOXIC _____
DEVELOPMENTAL _____ TRAUMATIC _____ NORMAL _____ OTHER _____

CONTRIBUTOR (NAME & ADDRESS): _____ COLLECTOR (NAME & ADDRESS): _____

ITEMS SUBMITTED (QUANTITY):

GROSS MATERIAL _____ PHOTOGRAPHS _____
SLIDES _____ REPRINTS _____
BLOCKS _____ OTHER _____

ORIGIN OF ANIMAL: MARINE _____ FRESHWATER _____ ESTUARINE _____ TERRESTRIAL _____
WHERE COLLECTED _____

DATE COLLECTED _____ SEX _____ AGE _____ STAGE OF LIFE CYCLE _____
HOW KILLED _____ FIXATION _____
GROSS DESCRIPTION _____

MICROSCOPE DX _____

COMMENTS (e.g., possible exposure to chemical pollutants or infectious agents, incidence and duration of this condition in the population, etc.)

100

100

100

100

100

100

6F
910
T92R33
Invert.
Zool.

ACTIVITIES REPORT
REGISTRY OF TUMORS IN LOWER ANIMALS:

1975 SUPPLEMENT

JOHN C. HARSHBARGER, DIRECTOR

PREPARED FOR DISTRIBUTION BY:

REGISTRY OF TUMORS IN LOWER ANIMALS
NATIONAL MUSEUM OF NATURAL HISTORY
ROOM W-216A
SMITHSONIAN INSTITUTION
WASHINGTON, D.C. 20560



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The activities of the Registry during 1975 reflected an increased interest in the cause and significance of neoplasia in invertebrate and cold-blooded vertebrate animals. As pointed out in the two previous activities reports (copies of which are still available) there are numerous proven and hypothesized benefits from studying neoplasms in lower animals including the discovery of: new carcinogens, indicators of carcinogens in the environment, vectors of cancer viruses, reservoirs of chemical carcinogens, multipliers of carcinogens in the food chain, models for the study of mechanisms of neoplastic transformation, sources of anti-cancer compounds, and models for screening the carcinogenicity and mutagenicity of new chemicals. Protection of animal populations from epizootic neoplasia and research spinoff in related fields can be added to this list.

SPECIMEN COLLECTION

The specimen collection is the most important component of the Registry's mission and we invite contributions of any material showing neoplasms or related diseases in cold-blooded vertebrates and invertebrates. The material will be processed as required and where applicable a set of microscope slides will be returned with the diagnosis. Almost all of the cases received add to the information on geographic and phylogenetic distribution of these diseases and their manifestation within the organism. In addition, many of the cases have special significance as they relate to one of the benefits mentioned above. Unfortunately a report such as this does not portray the total significance of each case, but in conjunction with the literature it will give one a fair estimation of where we stand.

In 1975 the specimen collection increased by 305 accessions, which represented a 62% increase over those received in 1974. The complete list of specimens with the diagnosis, name of contributor, and pertinent reference when applicable, is included in this report. Table I gives a breakdown of the major phylogenetic groups with the ratio of neoplastic to non-neoplastic lesions. The bulk of the specimens are bony fish and bivalve mollusks. Approximately two-thirds of the diagnosed material was neoplastic, but mollusca and arthropoda continue to be the only invertebrate phyla from which verifiable neoplasms are known.

Among the accessions of special interest were 47 hagfish cases having hepatocellular, cholangiocellular, and/or islet cell adenomas and adenocarcinomas. These cases, representing the only known neoplasms of this primitive vertebrate, were discovered in a Baltic Fjord by Sture Falkmer. Incidence decreased from 5.8% (liver lesions) and 0.5% (islet organ lesions) in 1972 to 0.6% and 0.1% respectively in 1974. The cause has not been determined.

Also of note were 102 cases from the soft-shell clam, Mya arenaria, primarily with germinomas and hematopoietic neoplasms. These animals were from an area where spillage of refined petroleum products has occurred. Incidence has averaged 4-5% in about 3,000 animals surveyed since 1971. Incidence of approximately 850 animals collected away from the oil spill site is 0.3-0.4%.

TABLE I
DISTRIBUTION OF LESIONS AMONG SPECIMENS ACCESSIONED

Phylogenetic Group	TYPE OF DISEASE		
	Neoplastic	Non-Neoplastic	Not Diagnosed
Reptile	6	16	2
Amphibian	4	3	0
Bony fish	45	49	5
Shark	1	0	0
Hagfish	47	2	0
Tunicate	0	1	0
Mollusks	108	9	2
Arthropods	0	4	0
Echinoderms	0	1	0
Total	211 (69%)	85 (28%)	9 (3%)
Percent of those diagnosed	(71%)	(29%)	
			305 (100%)

Other cases of interest included: (1) a parabranchial body adenoma in a rockfish (RTLA 1079) received from Gordon Bell and Gary Hoskins. These are well known in Pacific and Atlantic cod but were previously unknown in rockfish; (2) a hematopoietic neoplasm in an Australian oyster, Crassostrea commercialis, (RTLA 1117) from Peter Wolf. Mr. Wolf has discovered well over 100 epidermal papillomas in the mantle of this oyster but this is only the second hematopoietic lesion; (3) ossifying dermal fibromas in mullet (RTLA 1111) and southern flounder (RTLA 1112) were contributed by Robin Overstreet. Donald Lightner has also found lesions of this type in mullet (RTLA 807 and 821) and Tom Wright and Dave Tomljanovich have found them in sauger (RTLA 823). Frank Schwartz contributed an ossifying fibroma in the jaw of a crevalle jack (RTLA 1233); (4) Fredric Frye contributed a second palatine chondromyxofibroma from a tree frog (RTLA 1080); (5) Robert Wolke discovered a second striped bass nephroblastoma (RTLA 1124); (6) the first metastatic fish nephroblastoma occurred in a crucian carp, Carassius carassius, (RTLA 1153) submitted by David Bucke; (7) a metastatic pancreatic carcinoma in a tiger salamander, Ambystoma tigrinum, was submitted by Francis Rose (RTLA 1226). Approximately 50% of the salamanders living in the same sewage settling lagoon have skin neoplasms, some of which are highly invasive, but this is the first case of a metastatic cancer in this population; (8) the first plasma cell tumor in a reptile was in a cotton mouth moccasin submitted by E.P. Finnie (RTLA 1176); (9) three additional cases of benign polypoid neoplasms were discovered in bivalve mollusks. One in an Ostrea lurida (RTLA 1168) and one in a Crassostrea virginica (RTLA 1228) discovered by Michael Mix and by Sara Otto respectively originated from connective tissue proximal to the pericardium. The third case was a myoma of the foot of a surf clam, Spisula solidissima, (RTLA 1227) discovered by Louis Leibovitz; (10) two cases of bile duct adenofibrosis in white perch (RTLA 1226 and 1234) were discovered by Todd Beckerman and R.P. Morgan, II. Similar lesions can be induced in rat livers with hepatotoxic chemicals which suggest the perch may have been responding to an environmental pollutant. A similar case in a Siganus rivulatus (RTLA 1236) was submitted by Ilan Paperna; (11) during a routine autopsy of an apparently healthy spiny dogfish shark caught for experimental purposes, a papilloma of the choroid plexus (RTLA 1221) was discovered by Anthony Guarino, David Prieur, and Joseph Fenstermacher; (12) a komodo dragon received as a diplomatic present to the U.S. and housed at the National Zoo in Washington, D.C., began exhibiting intestinal disorders in 1973 and died in 1975 of congestive heart failure. Autopsy showed adenocarcinomatous lesions in colon, spleen, adrenal and pancreas, plus tumor emboli in blood vessels. The case (RTLA 1166), investigated by Richard Montali of the National Zoo, is the only neoplasm known from this reptilian species. An ancient encapsulated hematoma was also found in its foot pad by Charles Ross as the hide was being preserved; (13) material was received from thyroid hyperplasias and neoplasias in a variety of fish. It is difficult to make a definitive diagnosis of adenocarcinoma in fish thyroids because fish frequently get goiterous hyperplasias from lack of iodine or exposure to thyroid toxins such as thiourea. Since fish thyroids are unencapsulated, the hyperplastic follicles from goiters often invade but do not destroy normal tissues and can even be seen separating muscle fibers. RTLA 1099-1103 were Amazon mollies from Ronald Hart, with greatly enlarged thyroids. The hyperplastic follicles showed extensive tissue damage and local invasion thus favoring an interpretation of thyroid carcinoma. RTLA 1155 and 1157 were roaches from David Bucke with probable thyroid carcinomas although postmortem

change prevented an unqualified diagnosis. RTLA 1167 was an opaleye with a thyroid adenoma submitted by Roger Herman. RTLA 1208 was a Coris flavovittata with a thyroid adenoma from Robert Bourke. RTLA 1219 was a golden trout with either a thyroid or a renal adenocarcinoma from Charlie Smith and RTLA 1224 were several spots with thyroid hyperplasias from Gerry Cosgrove; (14) five fish neural sheath tumors were received: neurilemmomas in a sculpin from G.N. Swinney (RTLA 1078); in a goldfish from Ron Roberts (RTLA 1091); in a rainbow smelt from Vance Logan and Paul Odense (RTLA 1163); and in a snapper from Mike Sigel (RTLA 1378). A neurilemmal sarcoma was submitted in a Pseudo-tropheus tropheops from George Blasiola, Jr. (RTLA 1270); (15) epidermal papillomas from Dover sole (RTLA 1082-4) and a white croaker (RTLA 1086) were submitted by Dilworth Chamberlain. An epidermal papilloma from a bull-head (RTLA 1376) was received from Kenneth Wolf; (16) epizootic multiple myopathic granulomas of unknown etiology in skeletal muscle of walleyes (RTLA 1136-46) are being studied by Philip Economon; (17) a testicular leiomyoma in a kahawai was submitted by P.M. Hine (RTLA 1172); (18) Ted Meyers submitted tissue from the heart of an Atlantic sturgeon showing normal hematopoiesis associated with the epicardium of the heart (RTLA 1118); and, (19) an invasive melanoma from a chinook salmon was submitted by John Hnath (RTLA 1269).

REFERENCE LIBRARY

Approximately 150 papers were added to the comprehensive library on neoplasms in lower animals bringing the total to 2,950. Except for recent acquisitions and articles that need to be translated, all papers have been abstracted by selected key words and computerized.

PAPERS SINCE 1974

- Dawe, C.J. and J.C. Harshbarger. Neoplasms in Feral Fishes: Their Significance to Cancer Research. In: The Pathology of Fishes, W.E. Ribelin and G. Migaki (ed.), Chapter 35, pp. 871-94. The University of Wisconsin Press: Madison and London. 1975.
- Frye, F.L., J.D. Carney, J.C. Harshbarger, and R.F. Zeigel. Malignant Chromatophoroma in a Western Terrestrial Garter Snake. J. Amer. Vet. Med. Assoc., 167: 557-8. 1975.
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- Billups, L.H. and J.C. Harshbarger. Section XII: "Reptiles" of Chapter 6, "Naturally Occurring Neoplastic Diseases of Laboratory Animals". In: CRC Handbook of Laboratory Animal Science, Vol. 3, E.C. Melby, Jr. and N. Altman (ed.). CRC Press: Cleveland. (In press).

Harshbarger, J.C. Spontaneous Neoplasms in Amphibians, a Section of Chapter 1: "Tumors," in: Pathology of Laboratory Animals, Vol. 2, K. Benirschke, F.M. Garner, T.C. Jones, and C. Kozma (ed.). Springer-Verlag: New York. (In press).

OTHER ACTIVITIES IN 1975

1. Hosted and addressed a Marine Biomedical Research Meeting, sponsored by the National Institute of Environmental Health Sciences on 13-14 February 1975 [Bessey, O. Status of Marine Biomedical Research, Environ. Health Perspect., 13: 147-63, 1976; also summarized as Marine Biomedical Scientists Examine Harvest of Knowledge from the Sea, The NIH Record, 27(6): 4-5, 25 March 1975].
2. Served as Secretary of the UICC Committee on Comparative Oncology (chaired by C.J. Dawe of the U.S. National Cancer Institute).
3. Conducted research on integumentary neoplasms in cunners, catfish, and salamanders under the auspices of the above Committee.
4. Presented the report, "Malignant Lymphomas of Fish in the Collection of the Registry of Tumors in Lower Animals," at the First International Workshop on Malignant Lymphoma in Esocidae held in Stockholm on 9-11 October 1975.
5. Attended the VIIth International Symposium on Comparative Research on Leukemia and Related Diseases held in Copenhagen on 13-17 October 1975.
6. Collected catfish specimens and consulted with Dr. John Couch (Environmental Research Laboratory, U.S. Environmental Protection Agency, Gulf Breeze, Florida on 5-10 December 1975) on a collaborative study of epidermal and melanophore neoplasms of catfish. Also gave a seminar to the Laboratory's staff.
7. Consulted with personnel of the Mt. Desert Island Biological Laboratory, Salsbury Cove, Maine on 29-30 July 1975 and presented a seminar on the current status and benefits that may accrue from the study of neoplasms in invertebrate and cold-blooded vertebrate animals emphasizing the activities of the Registry of Tumors in Lower Animals.
8. Presented two papers at, and co-authored a third for, the VIIIth Annual Meeting of the Society for Invertebrate Pathology and attended the Executive Council Meeting as the Society's Secretary on 18-21 August 1975 in Corvallis, Oregon.
9. Participated in the planning and addressed a Workshop on Molluscan Pathology held at the Wye Institute, Wye Mills, Maryland on 3-5 September 1975.
10. Served as Secretary of the Washington, D.C. Chapter of Sigma Xi, The Scientific Research Society of North America.

11. Served on the Interagency Collaborative Group on Environmental Carcinogenesis (chaired by H.F. Kraybill of the U.S. National Cancer Institute).
12. Served as Secretary for the Society for Invertebrate Pathology.
13. Served as a member of the Committee on Animal Models and Genetic Stocks of the National Research Council of the National Academy of Sciences.
14. Participated in a cooperative investigation of the etiology of several diseases of bivalve mollusks, supported in part by the U.S. Food and Drug Administration.
15. Served as a member of the Planning Committee for a New York Academy of Sciences sponsored Conference entitled: "Aquatic Pollutants and Biological Effects With Emphasis on Neoplasia" to be held 27-29 September 1976 in New York City.
16. Participated in a meeting to assess the need for a new journal and a new society for comparative pathology held at the Eastern Virginia Medical School in Norfolk, Virginia, hosted by Daniel Cowan and Sanford Vernick, on 1 December 1975.
17. Was interviewed on several occasions by reporters interested in writing semi-popular articles on the biomedical effects of environmental pollution. Some of the resulting articles were: (1) Ember, Lois. The Specter of Cancer, Environ. Sci. Tech., 9(13): 1117-21, 1975; (2) Brett, Abigail Trafford. Fish: Man's Early Warning System, The Washington Post, section B, page 3, Sunday, 14 September 1975; and, (3) Pendelton, Deedee. Fish Tumors: Carcinogenic Indicators? Sci. News, 107(10): 157-8, 8 March 1975.

PERSONNEL

The Project Officer for the contract is Dr. Clyde J. Dawe, Head, Comparative Oncology Section, Laboratory of Pathology, National Cancer Institute, National Institutes of Health, Bethesda, Maryland, 20014.

The Principal Investigator for the contract is Dr. W. Duane Hope, Chairman, Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C., 20560.

The staff of the Registry is as follows:

John C. Harshbarger, Ph.D. - Director

Sing Chen Chang, Ph.D. - Electron Microscopist

Phyllis M. Schellenger, B.S. - Registrar

Linda J. Cullen, B.A. - Histopathology Technician

Judith E. Foster, B.S. - Bibliographer and Histopathology Technician

Marilyn Slatick, B.S. - Bibliographer

ACCESSIONS

RTLA 1078. Sculpin, Cottus gobio

Material: Posterior portion of specimen with a growth below the dorsal fin

Diagnosis: Neurilemmoma

Submitter: G. N. Swinney

RTLA 1079. Rockfish, Sebastes sp.

Material: Cleithrum area with a spongy, convoluted growth

Diagnosis: Parabranchial body adenoma

Submitter: G. E. Hoskins

RTLA 1080. Pacific tree frog, Hyla regilla

Material: A piece of tissue from palate

Diagnosis: Chondromyxoma

Submitter: F. L. Frye

RTLA 1081. Speckled sanddab, Citharichthys stigmaeus

Material: One gross specimen with missing right eye

Diagnosis: Probable physical injury

Submitter: D. W. Chamberlain

RTLA 1082. Dover sole, Microstomus pacificus

Material: One gross specimen with a lesion on the lower lip and a lesion on the caudal fin

Diagnosis: Epidermal papillomas coexistent with extensive inflammation

Submitter: D. W. Chamberlain

RTLA 1083. Dover sole, Microstomus pacificus

Material: One gross specimen with a growth located in a mid-lateral position below the lateral line and involving a portion of the anal fin

Diagnosis: Epidermal papilloma

Submitter: D. W. Chamberlain

RTLA 1084. Dover sole, Microstomus pacificus

Material: One gross specimen with three growths -- one each on the pectoral, caudal, and anal fins

Diagnosis: Epidermal papillomas

Submitter: D. W. Chamberlain

RTLA 1085~ White seaperch, Phanerodon furcatus

Material: One gross specimen with an eroded operculum on the left side

Diagnosis: Possible mechanical injury

Submitter: D. W. Chamberlain

RTLA 1086. White croaker, Genyonemus lineatus

Material: One gross specimen with two similar growths attached to the upper lip in opposite corners of the mouth

Diagnosis: Epidermal papillomas

Submitter: D. W. Chamberlain

- RTLA 1087. Largescale sucker, Catostomus macrocheilus
Material: Anal fin and adjoining body wall and growth
Diagnosis: Myoblastoma
Submitter: C. D. Becker
- RTLA 1088-9. Mussel, Mytilus edulis
Material: One gross specimen each with a growth on the foot
Diagnosis: Parasitic abscess
Submitter: S. E. Shumway
- RTLA 1090. Brown trout, Salmo trutta
Material: Caudal peduncle with a black, gelatinous growth
Diagnosis: Myxofibrosarcoma
Submitter: P. M. Hine
- RTLA 1091. Goldfish, Carassius auratus
Material: Two microscope slides; 1 color transparency
Diagnosis: Neurilemmoma or a neurofibroma
Submitter: R. J. Roberts
- RTLA 1092. Hard-shell clam, Mercenaria mercenaria
Material: Fixed digestive diverticula tissue; 3 microscope slides
Diagnosis: Chlamydia inclusions
Submitter: S. V. Otto, J. C. Harshbarger, and S. C. Chang
- RTLA 1093. Sitana ponticeriana
Material: One microscope slide; 1 color transparency
Diagnosis: Bacterial granuloma of the dermis accompanied by epidermal hyperplasia
Submitter: G. Matz
- RTLA 1094. Carp, Cyprinus carpio
Material: One microscope slide
Diagnosis: Fibromyxoma versus inflammatory polyp
Submitter: G. Migaki
- RTLA 1095. Croaker
Material: One eye with a mass of tissue at the margins
Diagnosis: Edematous conjunctiva due to infection with trematode-like parasites
Submitter: W. Kandrashoff
- RTLA 1096. Striped (black) mullet, Mugil cephalus
Material: Crooked pectoral fin
Diagnosis: Double fracture of fin spine associated with parasitic granulomas
Submitter: W. Kandrashoff
- RTLA 1097-8. Menhaden, Brevoortia sp.
Material: One crooked caudal fin each
Diagnosis: Double fracture of fin spine associated with parasitic granulomas
Submitter: W. Kandrashoff

- RTLA 1099-1103. Amazon molly, Poecilia formosa
Material: One gross specimen each
Diagnosis: Marked hyperplasia versus carcinoma of thyroid
Submitter: R. W. Hart
- RTLA 1104. Sea urchin
Material: One gross specimen with enlarged deformed spines
Diagnosis: Pending
Submitter: M. E. Downey
- RTLA 1105. Amazon molly, Poecilia formosa
Material: Twenty-four gross specimens
Diagnosis: Normal
Submitter: R. W. Hart
- RTLA 1106. Tunicate, Asciidiella sp.
Material: One partially dissected specimen with an abnormally enlarged cerebral ganglion/neural gland region
Diagnosis: Multiple cysts containing protozoa
Submitter: L. M. Laird
- RTLA 1107. Corn snake, Elaphe guttata guttata
Material: Four microscope slides; 2 paraffin blocks
Diagnosis: Parasitic granuloma of algal (Protothecosa sp.) etiology
Submitter: G. C. Crispens, Jr.
Reprint: Crispens, Charles G., Jr. and Ken R. Marion. Algal Infection in a Corn Snake (Elaphe guttata guttata). Lab. Anim. Sci., 25: 788-9. 1975.
- RTLA 1108. Shortfin eel, Anguilla australis
Material: Head with swollen lips and tail with patches of mucus; 3 microscope slides; 2 black and white photographs
Diagnosis: Hyperplastic epidermis with hypertrophic goblet cells
Submitter: P. M. Hine
- RTLA 1109. Scissorstail, Rasbora trilineata
Material: One gross specimen with a growth involving the right side of the head anterior to the eye
Diagnosis: Adenocarcinoma of unknown origin
Submitter: G. C. Blasiola, Jr.
- RTLA 1110. Shortfin eel, Anguilla australis
Material: A piece of skin with attached underlying tissue containing a cyst-like structure
Diagnosis: Pending
Submitter: P. M. Hine and N. C. Boustead
- RTLA 1111. Striped mullet, Mugil cephalus
Material: Two microscope slides
Diagnosis: Dermal fibroma with areas of ossification
Submitter: R. M. Overstreet
Reprint: Edwards, R. H. and R. M. Overstreet. Mesenchymal Tumors of Some Estuarine Fishes of the Northern Gulf of Mexico. I. Subcutaneous Tumors, Probably Fibrosarcomas, in the Striped Mullet, Mugil cephalus. Bull. Mar. Sci., 26: 33-40. 1976.

- RTLA 1112. Southern flounder, Paralichthys lethostigma
Material: Two microscope slides
Diagnosis: Subcutaneous fibroma
Submitter: R. M. Overstreet
Reprint: Overstreet, Robin M. and Robert H. Edwards. Mesenchymal Tumors of Some Estuarine Fishes of the Northern Gulf of Mexico. II. Subcutaneous Fibromas in the Southern Flounder, Paralichthys lethostigma, and the Sea Catfish, Arius felis. Bull. Mar. Sci., 26: 41-48. 1976.
- RTLA 1113. Sea catfish, Arius felis
Material: Two microscope slides
Diagnosis: Subcutaneous chondrofibroma
Submitter: R. M. Overstreet
Reprint: (See RTLA 1112)
- RTLA 1114. Boa constrictor
Material: Two paraffin blocks
Diagnosis: Intussusception (ileal)
Submitter: E. Elkan
- RTLA 1115. Boa constrictor
Material: One paraffin block
Diagnosis: Possible Anitschkow myocyte tumor
Submitter: E. Elkan
- RTLA 1116. Boa constrictor
Material: Two paraffin blocks
Diagnosis: Lymphocytic thyroiditis resembling Hashimoto's disease
Submitter: E. Elkan
- RTLA 1117. Sydney rock oyster, Crassostrea commercialis
Material: Two microscope slides
Diagnosis: Hematopoietic neoplasm co-existent with a haplosporidan infection
Submitter: P. H. Wolf
- RTLA 1118. Atlantic sturgeon, Acipenser oxyrinchus
Material: One microscope slide; 1 paraffin block
Diagnosis: Normal hematopoietic tissue peripheral to heart
Submitter: T. R. Meyers
- RTLA 1119. Coho salmon, Oncorhynchus kisutch
Material: One microscope slide; 2 black and white photographs; 1 color transparency
Diagnosis: Glochidia from Margaritifera margaritifera producing epithelial and stromal hyperplasia from host
Submitter: T. R. Meyers
Reprint: Master's thesis: Susceptibility of Juvenile Salmonid Fishes to Infection with Glochidia of Margaritifera margaritifera (L.) (Pelecypoda: Margaritanidae).

RTLA 1120. Chinook salmon, Oncorhynchus tshawytscha

Material: One microscope slide; 3 black and white photographs;
1 color transparency

Diagnosis: Glochidia from Margaritifera margaritifera producing
epithelial and stromal hyperplasia from host

Submitter: T. R. Meyers

Reprint: (See RTLA 1119)

RTLA 1121. Summer flounder, Paralichthys dentatus

Material: One microscope slide

Diagnosis: Stephanostomum sp. metacercariae -- encysted

Submitter: T. R. Meyers

RTLA 1122. Copepod, Lernaeenicus radiatus

Material: One gross specimen with thin, white, wing-like material
streaming from the abdomen

Diagnosis: Parasitic fungi

Submitter: T. R. Meyers

RTLA 1123. Striped bass, Morone saxatilis

Material: One piece of tissue containing a segment of a 10x4x1.5 cm
reddish-brown lesion in flank muscle; 2 microscope slides;
2 paraffin blocks

Diagnosis: Scar

Submitter: D. E. Zwerner

RTLA 1124. Striped bass, Morone saxatilis

Material: Four pieces of tissue; 1 microscope slide

Diagnosis: Nephroblastoma

Submitter: R. E. Wolke

RTLA 1125-6. Oyster, Crassostrea virginica

Material: Three microscope slides each; 1 paraffin block each

Diagnosis: Rickettsia-like inclusions

Submitter: S. V. Otto

RTLA 1127-30. Soft-shell clam, Mya arenaria

Material: Three microscope slides each; 1 paraffin block each

Diagnosis: Rickettsia-like inclusions

Submitter: S. V. Otto

RTLA 1131. Boa constrictor

Material: Four microscope slides; 1 paraffin block

Diagnosis: Subcutaneous multiple mycotic granulomas

Submitter: C. G. Crispens, Jr.

RTLA 1132. American toad, Bufo americanus

Material: Two microscope slides from small yellow growth near tympanum

Diagnosis: Probably a type of xanthosis

Submitter: C. L. Counts, III

RTLA 1133. Tiger salamander, Ambystoma tigrinum

Material: One piece of tissue

Diagnosis: Fibrosarcoma

Submitter: F. L. Rose

- RTLA 1134. Mussel shrimp, Gigantocypris muelleri
Material: Left seventh limb
Diagnosis: Probable physical injury
Submitter: L. S. Kornicker
- RTLA 1135. Red-spotted newt, Notophthalmus viridescens
Material: One gross specimen from which a growth had been removed from the neck and the excised growth; 2 microscope slides; 1 paraffin block; 2 black and white photographs
Diagnosis: Neural neoplasm -- type undetermined
Submitter: C. L. Counts, III
- RTLA 1136. Walleye, Stizostedion vitreum vitreum
Material: One piece of tissue; 1 microscope slide; 1 paraffin block; 1 laboratory report
Diagnosis: Multiple myopathic granulomas -- etiology undetermined
Submitter: P. P. Economon
- RTLA 1137-9. Walleye, Stizostedion vitreum vitreum
Material: One piece of tissue each
Diagnosis: Normal
Submitter: P. P. Economon
- RTLA 1140. Walleye, Stizostedion vitreum vitreum
Material: Two pieces of tissue; 1 laboratory report
Diagnosis: Multiple myopathic granulomas -- etiology undetermined
Submitter: P. P. Economon
- RTLA 1141. Walleye, Stizostedion vitreum vitreum
Material: Three pieces of tissue; 4 color transparencies; 3 black and white photographs; 1 laboratory report
Diagnosis: Multiple myopathic granulomas -- etiology undetermined
Submitter: P. P. Economon
- RTLA 1142-5. Walleye, Stizostedion vitreum vitreum
Material: One piece of tissue each; 1 laboratory report each
Diagnosis: Multiple myopathic granulomas -- etiology undetermined
Submitter: P. P. Economon
- RTLA 1146. Walleye, Stizostedion vitreum vitreum
Material: Two pieces of tissue; 4 microscope slides; 10 color transparencies; 1 laboratory report
Diagnosis: Multiple myopathic granulomas -- etiology undetermined
Submitter: P. P. Economon
- RTLA 1147. Yellow rat snake, Elaphe obsoleta quadrivittata
Material: One gross specimen with distended oviduct
Diagnosis: Acute bacterial infection, inflammation, and necrosis
Submitter: I. L. C. Gorman
- RTLA 1148. Geoduck, Panope generosa
Material: A pigmented lesion from the siphon
Diagnosis: Adherent material
Submitter: A. C. Smith

- RTLA 1149. Chum salmon, Oncorhynchus keta
Material: A portion of the tail with a large growth
Diagnosis: Osteoma
Submitter: G. R. Bell
- RTLA 1150. Tropical red-eared turtle, Chrysemys ornata callirostris
Material: One piece of tissue; 4 microscope slides; 1 black and white photograph
Diagnosis: Multiple granulomas of spleen with amyloid deposits -- etiology unknown
Submitter: E. Elkan
- RTLA 1151. Lake trout, Salvelinus namaycush
Material: Five pieces of liver tissue; 5 microscope slides
Diagnosis: Hemangioendothelioma arising from blood vessels in the liver
Submitter: C. E. Smith
- RTLA 1152. Rainbow trout, Salmo gairdneri
Material: A growth severed into 2 pieces
Diagnosis: Nephroblastoma
Submitter: J. G. Hnath
- RTLA 1153. Crucian carp, Carassius carassius
Material: Fixed tissue; 1 microscope slide; 2 color transparencies
Diagnosis: Nephroblastoma metastatic to pancreas
Submitter: D. Bucke
- RTLA 1154. Common bream, Abramis brama
Material: Two pieces of tissue; 2 microscope slides
Diagnosis: Lymphosarcoma
Submitter: D. Bucke
- RTLA 1155. Roach, Rutilus rutilus
Material: Four microscope slides; 2 paraffin blocks; 2 color transparencies
Diagnosis: Probable thyroid adenocarcinoma
Submitter: D. Bucke
- RTLA 1156. Tench, Tinca tinca
Material: Two microscope slides; 2 black and white photographs
Diagnosis: Well-differentiated rhabdomyosarcoma
Submitter: D. Bucke
- RTLA 1157. Roach, Rutilus rutilus
Material: Two microscope slides; 1 paraffin block; 1 color transparency
Diagnosis: Probable thyroid adenocarcinoma
Submitter: D. Bucke
- RTLA 1158. Rainbow trout, Salmo gairdneri
Material: Two microscope slides
Diagnosis: Hepatoma
Submitter: D. Bucke

- RTLA 1159. European eel, Anguilla anguilla
Material: One color transparency of a 8 cm lesion in ventral muscle
Diagnosis: Myositis
Submitter: D. Bucke
- RTLA 1160-2. Crucian carp, Carassius carassius
Material: One microscope slide each
Diagnosis: Polycystic kidney
Submitter: D. Bucke
- RTLA 1163. Rainbow smelt, Osmerus mordax
Material: One piece of tissue; 5 microscope slides; 5 electron micrographs; 2 black and white photographs
Diagnosis: Neurilemmoma
Submitter: V. H. Logan and P. H. Odense
- RTLA 1164. Sea turtle, Eretmochelys imbricata
Material: Two small growths from the corner of the right eye
Diagnosis: Inflammation associated with bacterial infection
Submitter: R. Bourke
- RTLA 1165. Palani, Acanthurus dusumieri
Material: Skin from the head region of 2 palani with spreading scale-like lesions
Diagnosis: Loss of epidermis - no inflammation - possible parasitic etiology
Submitter: R. Bourke
- RTLA 1166. Komodo dragon, Varanus komodoensis
Material: A round hard lump from a toe; 4 color transparencies; 8 microscope slides; 1 pathology record
Diagnosis: Toe - ancient encapsulated hematoma; pancreas - islet cell tumor; colon - carcinoma; spleen - metastatic mucinous adenocarcinoma; adrenal - pheochromocytoma; thyroid - multiple follicular adenomas; testis - cystic interstitial cell tumor
Submitter: C. A. Ross (toe) and R. J. Montali (other material)
- RTLA 1167. Opaleye, Girella nigricans
Material: One piece of tissue; 1 microscope slide
Diagnosis: Thyroid adenoma
Submitter: R. L. Herman
- RTLA 1168. Oyster, Ostrea lurida
Material: Eight pathologic microscope slides; 1 normal control microscope slide; 3 black and white photographs
Diagnosis: Multilobed polypoid neoplasm of pericardial mesothelium associated with a marked proliferation of connective tissue differentiating into heart muscle
Submitter: M. C. Mix
- RTLA 1169. Soft-shell clam, Mya arenaria
Material: One microscope slide
Diagnosis: Diffuse sarcoma of possible amoebocyte stem cell origin
Submitter: P. P. Yevich

- RTLA 1170. Mussel, Mytilus edulis
Material: Two microscope slides; 1 black and white photograph
Diagnosis: Fibroma
Submitter: P. H. Wolf
- RTLA 1171. Mud turtle, Kinosternon subrubrum
Material: A growth from an eyelid
Diagnosis: Conjunctival epidermoid cyst
Submitter: F. Blasdel
- RTLA 1172. Kahawai, Arripis trutta
Material: Testicular lesion
Diagnosis: Leiomyoma
Submitter: P. M. Hine
- RTLA 1173. Rainbow trout, Salmo gairdneri
Material: One microscope slide; 5 color transparencies
Diagnosis: Multiple, minute granulomas in visceral fat due to an infectious agent, a toxin, or a sensitizing dietary by-product
Submitter: H. Wolf
- RTLA 1174. Bullsnaek, Pituophis sp.
Material: Two microscope slides
Diagnosis: Intestinal polyposes/intestinal papillomatosis
Submitter: F. L. Frye
- RTLA 1175. Fat-tailed gecko, Eublepharis macularis
Material: One microscope slide; 1 paraffin block
Diagnosis: Pseudocystic lesion of apparent bacterial etiology which is associated with and may be of ovarian origin
Submitter: C. G. Crispens, Jr.
- RTLA 1176. Cotton mouth moccasin, Agkistrodon piscivorus
Material: Twenty-five microscope slides
Diagnosis: Plasma cell tumor which was leukemic in the terminal phase
Submitter: E. P. Finnie
- RTLA 1177. Atlantic hagfish, Myxine glutinosa
Material: Three b & w and 11 color transparencies of gross liver tumors; 8 color photomicrographs
Diagnosis: Hepatocellular and cholangiocellular carcinomas
Submitter: S. Falkmer
Reprint: Falkmer, Sture et al. Tumor Pathology of the Hagfish, Myxine glutinosa, and the River Lamprey, Lampetra fluviatilis: A Light Microscopical Study with Particular Reference to the Occurrence of Primary Liver Carcinoma, Islet Cell Tumors, and Epidermoid Cysts of the Skin. In: Progress in Experimental Tumor Research, Vol. 20, Neoplasms in Aquatic Animals as Indicators of Environmental Carcinogens, F. Homberger (ed.), pp. 216-250. Karger: Basel. 1976.
- RTLA 1178. Atlantic hagfish, Myxine glutinosa
Material: One paraffin block; 1 color photomicrograph
Diagnosis: Hepatocellular carcinoma
Submitter: S. Falkmer
Reprint: (See RTLA 1177)

- RTLA 1179. Atlantic hagfish, Myxine glutinosa
Material: One paraffin block; 1 color photomicrograph
Diagnosis: Cholangiocellular carcinoma
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1180. Atlantic hagfish, Myxine glutinosa
Material: Two paraffin blocks; 1 color photomicrograph
Diagnosis: Nodular hepatocellular hyperplasia versus adenoma
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1181. River lamprey, Lampetra fluviatilis
Material: Three microscope slides; 1 paraffin block; 3 color transparencies
Diagnosis: Well-differentiated hepatocellular neoplasm
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1182. Atlantic hagfish, Myxine glutinosa
Material: One paraffin block; 1 color photomicrograph
Diagnosis: Islet tumor
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1183. Atlantic hagfish, Myxine glutinosa
Material: One piece of tissue
Diagnosis: Normal
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1184. Atlantic hagfish, Myxine glutinosa
Material: Four pieces of tissue
Diagnosis: Incipient hepatocellular neoplasm
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1185. Atlantic hagfish, Myxine glutinosa
Material: Two pieces of tissue
Diagnosis: Normal
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1186. Atlantic hagfish, Myxine glutinosa
Material: Five pieces of tissue
Diagnosis: Multiple hepatocellular neoplasms and cholangiohyperplasias
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1187. Atlantic hagfish, Myxine glutinosa
Material: Five pieces of tissue
Diagnosis: Normal
Submitter: S. Falkmer
Reprint: (See RTLA 1177)

RTLA 1188. Atlantic hagfish, Myxine glutinosa

Material: Four pieces of tissue

Diagnosis: Normal

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1189. Atlantic hagfish, Myxine glutinosa

Material: Three pieces of tissue

Diagnosis: Epidermoid cyst

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1190. Atlantic hagfish, Myxine glutinosa

Material: Three pieces of tissue

Diagnosis: Cholangioma

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1191. Atlantic hagfish, Myxine glutinosa

Material: Two pieces of tissue

Diagnosis: Cholangioma

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1192. Atlantic hagfish, Myxine glutinosa

Material: Nine pieces of tissue

Diagnosis: Cholangiohyperplasia

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1193. Atlantic hagfish, Myxine glutinosa

Material: Three pieces of tissue

Diagnosis: Normal

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1194. Atlantic hagfish, Myxine glutinosa

Material: Two pieces of tissue

Diagnosis: Moderately well-differentiated hepatocellular carcinoma

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1195. Atlantic hagfish, Myxine glutinosa

Material: Three pieces of tissue

Diagnosis: Epidermoid cyst

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1196. Atlantic hagfish, Myxine glutinosa

Material: One piece of tissue

Diagnosis: Well-differentiated hepatocellular carcinoma

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1197. Atlantic hagfish, Myxine glutinosa

Material: One piece of tissue

Diagnosis: Normal

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1198. Atlantic hagfish, Myxine glutinosa

Material: One piece of tissue

Diagnosis: Well-differentiated hepatocellular neoplasm; granuloma

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1199. Atlantic hagfish, Myxine glutinosa

Material: One piece of tissue

Diagnosis: Well-differentiated hepatocellular neoplasm

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1200. Atlantic hagfish, Myxine glutinosa

Material: Four pieces of tissue

Diagnosis: Cholangioma

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1201. Atlantic hagfish, Myxine glutinosa

Material: One gross specimen

Diagnosis: Normal

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1202. Atlantic hagfish, Myxine glutinosa

Material: One gross specimen

Diagnosis: Multiple nodular well-differentiated hepatocellular neoplasm

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1203. Atlantic hagfish, Myxine glutinosa

Material: One gross specimen

Diagnosis: Hemorrhage

Submitter: S. Falkmer

Reprint: (See RTLA 1177)

RTLA 1204. English sole, Parophrys vetulus

Material: A wedge of body wall and attached dorsal fin with a growth involving both the pigmented and unpigmented sides of the fish and dorsal fin

Diagnosis: A large, ulcerated, excavating, inflammatory lesion involving the dermis, subcutaneous connective tissue, and skeletal muscle in response to two types of meta-zoan parasites

Submitter: G. R. Bell

- RTLA 1205. Rainbow trout, Salmo gairdneri
Material: Enlarged kidney, spleen, liver, and heart tissue
Diagnosis: Probable lymphoma
Submitter: P. M. Hine
- RTLA 1206. Helmeted turtle, Pelomedusa subruga
Material: Three microscope slides; 1 laboratory report
Diagnosis: Myelogenous leukemia
Submitter: R. J. Montali
- RTLA 1207. Toad, Pipa pipa
Material: One gross specimen
Diagnosis: Infestation by helminths; cause of death undetermined
Submitter: I. L. C. Gorman
- RTLA 1208. Coris flavovittata
Material: Right gill arch with attached growth
Diagnosis: Thyroid adenoma
Submitter: R. Bourke
- RTLA 1209. Lake trout, Salvelinus namaycush
Material: A piece of tissue from a growth attached to the exterior body wall
Diagnosis: Well-differentiated lipoma
Submitter: G. R. Bell
- RTLA 1210. Atlantic salmon, Salmo salar
Material: Liver and gall bladder with 2 cyst-like growths; 1 microscope slide; 1 black and white photograph
Diagnosis: Pseudocysts of possible parasitic origin in the liver
Submitter: C. E. Smith
- RTLA 1211A & B. Milkfish, Chanos chanos
Material: Normal adipose eyelid (RTLA 1211A); opaque adipose eyelid (RTLA 1211B)
Diagnosis: Severe pigmentation and opaqueness of eyelid
Submitter: A. C. Smith
- RTLA 1212A & B. Albula vulpes
Material: Opaque adipose eyelid (RTLA 1212A); normal adipose eyelid (RTLA 1212B)
Diagnosis: Mild pigmentation and opaqueness of eyelid
Submitter: A. C. Smith
- RTLA 1213A & B. Tilapia mossambica
Material: "Anemic" liver tissue (RTLA 1213A); normal liver tissue (RTLA 1213B)
Diagnosis: Postmortem change
Submitter: A. C. Smith
- RTLA 1214. Ceylonese pond frog, Rana hexadactylus
Material: One gross specimen
Diagnosis: A massive disseminated infection by a septate spore-forming fungus
Submitter: G. C. Blasiola, Jr.

- RTLA 1215. Rat snake, Elaphe obsoleta
Material: One gross specimen
Diagnosis: Cause of death undetermined
Submitter: I. L. C. Gorman
- RTLA 1216. Rat snake, Elaphe obsoleta
Material: One gross specimen
Diagnosis: Acanthocephalan worm and bacteria in lungs; pneumonia
Submitter: I. L. C. Gorman
- RTLA 1217. Rock sole, Lepidopsetta bilineata
Material: A piece of body wall with attached growth
Diagnosis: Epidermal papilloma associated with dermal parasitic granulomas
Submitter: G. R. Bell
- RTLA 1218. Lingcod, Ophiodon elongatus
Material: A large piece of body wall
Diagnosis: Lymphocystis
Submitter: G. R. Bell and G. E. Hoskins
- RTLA 1219. Golden trout, Salmo aguabonita
Material: Two pieces of tissue; 4 microscope slides; 2 color transparencies; 2 black and white photographs
Diagnosis: Renal versus thyroid adenocarcinoma
Submitter: C. E. Smith
- RTLA 1220. Striped bass, Morone saxatilis
Material: Viscera with attached growth
Diagnosis: Probable leiomyoma; inadequately preserved for a definitive diagnosis
Submitter: M. W. Smith
- RTLA 1221. Spiny dogfish, Squalus acanthias
Material: Seven microscope slides; 1 paraffin block; 39 color transparencies; 83 b & w photographs; 7, 4 X 5" & 5, 35 mm b & w negatives
Diagnosis: A choroid plexus papilloma
Submitter: A. M. Guarino and D. J. Prieur
Reprint: Prieur, David J., Joseph D. Fenstermacher, and Anthony M. Guarino. A Choroid Plexus Papilloma in an Elasmobranch, Squalus acanthias. J. Natl. Cancer Inst., 56: 1207-09. 1976.
- RTLA 1222. White perch, Morone americana
Material: One microscope slide; 1 color transparency
Diagnosis: Well-vascularized, ulcerated, fibrous hyperplasia of the dermis associated with inflammation
Submitter: T. Beckerman and R. P. Morgan, II
- RTLA 1223. Guppy, Poecilia reticulata
Material: Two microscope slides
Diagnosis: (1) Multiple visceral and body wall granulomas; (2) cholangioma in liver
Submitter: G. E. Cosgrove

- RTLA 1224. Spot, Leiostomus xanthurus
Material: Three microscope slides from 3 fish; 1 color photograph
Diagnosis: (1) Thyroid hyperplasia in all fish; (2) gill hyperplasia in one fish
Submitter: G. E. Cosgrove
- RTLA 1225. White perch, Morone americana
Material: Two microscope slides; 2 color transparencies
Diagnosis: Bile duct adenofibrosis of probable hepatotoxin origin
Submitter: T. Beckerman and R. P. Morgan, II
- RTLA 1226. Tiger salamander, Ambystoma tigrinum
Material: Viscera; internal growth just anterior to the stomach
Diagnosis: Metastatic pancreatic carcinoma
Submitter: F. L. Rose
- RTLA 1227. Surf clam, Spisula solidissima
Material: A portion of the foot with attached growth; 2 color transparencies; 1 black and white photograph
Diagnosis: Multiple polypoid myomas of the foot
Submitter: L. Leibovitz
- RTLA 1228. Oyster, Crassostrea virginica
Material: A growth with adjacent tissue
Diagnosis: Polypoid vesicular tumor and associated inflammation
Submitter: S. V. Otto
- RTLA 1229. American alligator, Alligator mississippiensis
Material: Growth from anterior to left nares
Diagnosis: Pending
Submitter: C. A. Ross
- RTLA 1230. Panamint rattlesnake, Crotalus mitchelli
Material: Four microscope slides; 2 paraffin blocks
Diagnosis: Multiple subcutaneous mycotic granulomas
Submitter: C. G. Crispens, Jr.
- RTLA 1231. Striped bass, Morone saxatilis
Material: Three microscope slides; 4 color transparencies
Diagnosis: Infectious granulomas in liver and spleen
Submitter: T. Beckerman and R. P. Morgan, II
- RTLA 1232A & B. Milkfish, Chanos chanos
Material: Four pieces of stomach tissue -- 2 pathologic; 2 normal
Diagnosis: Gastritis
Submitter: A. C. Smith
- RTLA 1233. Crevalle jack, Caranx hippos
Material: Seventeen microscope slides
Diagnosis: Fibroma
Submitter: F. J. Schwartz
Reprint: Schwartz, Frank J. A Crevalle Jack, Caranx hippos (Pisces, Carangidae), With Mandibular Calcified Connective Tissue Fibroma. Chesapeake Sci., 16(1): 72-3. 1975.

- RTLA 1234. White perch, *Morone americana*
Material: One microscope slide; 5 color transparencies
Diagnosis: Bile duct adenofibrosis associated with a protozoan infection
Submitter: T. Beckerman and R. P. Morgan, II
- RTLA 1235. Carp, *Cyprinus carpio* (?)
Material: One microscope slide
Diagnosis: Focal spermatocytoma/early seminoma
Submitter: D. Bucke
- RTLA 1236. *Siganus rivulatus*
Material: Two pieces of liver tissue; 3 microscope slides
Diagnosis: Probable cholangiofibrosis
Submitter: I. Paperna
- RTLA 1237. Sea bream, *Sparus auratus*
Material: One microscope slide; epon embedded tissue
Diagnosis: Extracellular inclusions (cores of granulomas) in the gills
Submitter: I. Paperna
- RTLA 1238. Eastern box turtle, *Terrapene carolina*
Material: One gross specimen (alive) with 2 greatly enlarged areas involving both sides of the head, posterior to the eyes; the jaws were misaligned by the swelling
Diagnosis: Mastoid granuloma
Submitter: R. Eschelmann
- RTLA 1239. Eastern box turtle, *Terrapene carolina*
Material: A growth removed from the right side of the head near the ear
Diagnosis: Bacterial granuloma
Submitter: W. Frair
- RTLA 1240. Dover sole, *Microstomus pacificus*
Material: Dorsal fin with small yellow nodules; 1 microscope slide
Diagnosis: Possibly some type of fat storage disease
Submitter: G. E. Hoskins and G. R. Bell
- RTLA 1241. American crocodile, *Crocodylus acutus*
Material: One microscope slide; 1 color transparency; 1 pathology record
Diagnosis: Lipoma versus some type of fat storage disease
Submitter: R. J. Montali
- RTLA 1242. *Boa constrictor*
Material: One microscope slide; 2 color transparencies; 1 necroscopy record
Diagnosis: Renal adenocarcinoma
Submitter: R. J. Montali

RTLA 1243. Atlantic cutlassfish, Trichiurus lepturus

Material: A piece of body wall with growth around the vent
Diagnosis: Ulcerated, excavating (muscle), inflammatory lesion
mostly composed of fibrocytes, a mixed population of
leukocytes, and a large population of several species
of bacteria; some type of worm was also present
Submitter: D. J. Ebert

RTLA 1244. Atlantic hagfish, Myxine glutinosa

Material: One microscope slide; 1 paraffin block
Diagnosis: Moderately well-differentiated hepatocellular neoplasm
Submitter: S. Falkmer
Reprint: (See RTLA 1177)

RTLA 1245. Atlantic hagfish, Myxine glutinosa

Material: One microscope slide; 1 paraffin block
Diagnosis: Hepatocellular and cholangiocellular -- mixed carcinoma
"adenoma" and hamartoma (?)
Submitter: S. Falkmer
Reprint: (See RTLA 1177)

RTLA 1246. Atlantic hagfish, Myxine glutinosa

Material: One microscope slide; 1 paraffin block
Diagnosis: Hepatocellular and cholangiocellular - adenoma (?)
Submitter: S. Falkmer
Reprint: (See RTLA 1177)

RTLA 1247. Atlantic hagfish, Myxine glutinosa

Material: One microscope slide; 1 paraffin block
Diagnosis: Hepatocellular and cholangiocellular - hepatocellular
carcinoma
Submitter: S. Falkmer
Reprint: (See RTLA 1177)

RTLA 1248. Atlantic hagfish, Myxine glutinosa

Material: One microscope slide; 1 paraffin block
Diagnosis: Hepatocellular and cholangiocellular - bleedings
Submitter: S. Falkmer
Reprint: (See RTLA 1177)

RTLA 1249. Atlantic hagfish, Myxine glutinosa

Material: One microscope slide; 2 paraffin blocks
Diagnosis: Hepatocellular and cholangiocellular - adenoma
Submitter: S. Falkmer
Reprint: (See RTLA 1177)

RTLA 1250. Atlantic hagfish, Myxine glutinosa

Material: One microscope slide; 2 paraffin blocks
Diagnosis: Hepatocellular and cholangiocellular - cholangiocellular
carcinoma + nodular hyperplasia (?)
Submitter: S. Falkmer
Reprint: (See RTLA 1177)

- RTLA 1251. Atlantic hagfish, Myxine glutinosa
Material: One microscope slide; 3 paraffin blocks
Diagnosis: Hepatocellular and cholangiocellular - cholangiocellular carcinoma + nodular hyperplasia
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1252. Atlantic hagfish, Myxine glutinosa
Material: One microscope slide; 1 paraffin block
Diagnosis: Hepatocellular and cholangiocellular - cholangiocellular carcinoma + nodular hyperplasia
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1253. Atlantic hagfish, Myxine glutinosa
Material: Three microscope slides
Diagnosis: Hamartoma (?) - insuloma-hamartoma (cyst only)
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1254. Atlantic hagfish, Myxine glutinosa
Material: Three microscope slides; 1 paraffin block
Diagnosis: Hamartoma (?) - insuloma-hamartoma
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1255. Atlantic hagfish, Myxine glutinosa
Material: One microscope slide; 1 paraffin block
Diagnosis: Hamartoma (?) - insuloma-hamartoma
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1256. Atlantic hagfish, Myxine glutinosa
Material: One microscope slide; 1 paraffin block
Diagnosis: Hamartoma (?) - poorly-differentiated insuloma
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1258. Atlantic hagfish, Myxine glutinosa
Material: Three microscope slides; 1 paraffin block
Diagnosis: Hamartoma (?) - highly-differentiated insuloma
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1259. Atlantic hagfish, Myxine glutinosa
Material: Two microscope slides; 2 paraffin blocks
Diagnosis: Adenocarcinoma - solid tumor - mucus granuloma (?)
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1260. Atlantic hagfish, Myxine glutinosa
Material: Two microscope slides; 1 paraffin block
Diagnosis: Adenocarcinoma - solid tumor
Submitter: S. Falkmer
Reprint: (See RTLA 1177)

- RTLA 1261. Atlantic hagfish, Myxine glutinosa
Material: One microscope slide; 1 paraffin block
Diagnosis: Cutaneous leiomyosarcoma - fibroma (?) - sarcoma
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1262. Atlantic hagfish, Myxine glutinosa
Material: One microscope slide
Diagnosis: Cutaneous leiomyosarcoma - leiomyosarcoma
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1263. Atlantic hagfish, Myxine glutinosa
Material: One microscope slide; 1 paraffin block
Diagnosis: Cutaneous leiomyosarcoma - sessile skin polyp, containing ganglion cells (?) myelomeningocele (?) "myxoma"
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1264. Atlantic hagfish, Myxine glutinosa
Material: One microscope slide
Diagnosis: Cutaneous leiomyosarcoma - fibroma of the tentacles
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1265. Atlantic hagfish, Myxine glutinosa
Material: One microscope slide
Diagnosis: Non-neoplastic cysts
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1266. Atlantic hagfish, Myxine glutinosa
Material: One microscope slide; 1 paraffin block
Diagnosis: Non-neoplastic cysts
Submitter: S. Falkmer
Reprint: (See RTLA 1177)
- RTLA 1267. Shortfin eel, Anguilla australis
Material: Fixed material; 2 black and white photographs
Diagnosis: Hepatoma
Submitter: P. M. Hine
- RTLA 1268A & B. American lobster, Homarus americanus
Material: Normal and abnormal structures from diseased animal (RTLA 1268A); same structures from control animal (RTLA 1268B)
Diagnosis: Developing egg masses that adhered to the appendages and coxa during spawning
Submitter: S. A. MacLean
- RTLA 1269. Chinook salmon, Oncorhynchus tshawytscha
Material: Piece of body wall with a large, black, granular growth
Diagnosis: Melanoma
Submitter: J. G. Hnath

- RTLA 1270. Pseudotropheus tropheops
Material: Gross specimen with a growth on the body wall
Diagnosis: Neurilemmal sarcoma
Submitter: G. C. Blasiola, Jr.
- RTLA 1271. Hard-shell clam, Mercenaria mercenaria
Material: One paraffin block
Diagnosis: Intracellular inclusions
Submitter: S. V. Otto
- RTLA 1272. Mussel, Modiolus modiolus
Material: Four microscope slides
Diagnosis: Benign neoplasm of vesicular connective tissue
Submitter: R. J. Roberts
- RTLA 1273. Coho salmon, Oncorhynchus kisutch
Material: One gross specimen with a large growth on the left side
Diagnosis: Nephroblastoma
Submitter: G. E. Hoskins and G. R. Bell
- RTLA 1274-1374. Soft-shell clam, Mya arenaria
Material: One hundred twenty-five microscope slides; 211 paraffin blocks
Diagnosis: Approximately one-third of the cases have been examined; all are germinomas
Submitter: P. P. Yevich
- RTLA 1375. Creek chub, Semotilus atromaculatus
Material: One gross specimen with 4 lesions: 1 under the right lower jaw; 1 on the left lateral body wall, posterior to the vent; 1 on the left peduncle; and 1 internally (mid-ventral) attached to the body wall
Diagnosis: Protozoan cyst, Myxobolus sp. suspected
Submitter: W. J. Buc
- RTLA 1376. Brown bullhead, Ictalurus nebulosus
Material: Four microscope slides
Diagnosis: Oral epidermal papilloma
Submitter: K. E. Wolf and E. J. Washuta
- RTLA 1377. Chinook salmon, Oncorhynchus tshawytscha
Material: A large piece of body wall; 4 color photographs
Diagnosis: Partial reduplication of the digestive tract; developmental anomaly
Submitter: J. G. Hnath
- RTLA 1378. Snapper
Material: Nineteen microscope slides
Diagnosis: Neurilemmoma
Submitter: M. M. Sigel

RTLA 1379. Honey bee, Apis mellifera

Material: Twenty microscope slides

Diagnosis: The following bacterial and mycotic (fungal) diseases, protozoan and gregarine infections, mites, and louses are represented:

American foulbrood - Bacillus larvae

European foulbrood - Streptococcus pluton;

Bacillus laterosporus (probable secondary invader)

Septicemia - Pseudomonas (Bacillus) apiseptica

Stonebrood - Aspergillus flavus

Chalkbrood - Ascospaera apis

Nosema apis

Monocia apis

Varroa jacobsoni

Tropilaelaps clareae

Braula coeca

Submitter: G. E. Cantwell

Reprint: Cantwell, George E. Honey Bee Diseases, Parasites, and Pests. In: Insect Diseases, Vol. 2, G. E. Cantwell (ed.), pp. 501-47. Marcel Dekker: New York. 1974.

RTLA 1380. Gulf coast box turtle, Terrapene carolina major

Material: Two microscope slides; 1 paraffin block

Diagnosis: Infectious granuloma of mixed bacterial etiology

Submitter: C. G. Crispens, Jr. and K. R. Marion

RTLA 1381. Soft-shell clam, Mya arenaria

Material: One paraffin block

Diagnosis: Teratoid anomaly

Submitter: S. V. Otto

RTLA 1382. Rainbow trout, Salmo gairdneri

Material: One microscope slide

Diagnosis: Adenocarcinoma

Submitter: B. L. Munday

RTLA 1383. "Fancy" carp (Nishikigoi), Cyprinus sp.

Material: Forty-five microscope slides representing six cases

Diagnosis: Ovarian teratoid tumors

Submitter: T. Ishikawa

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<u>Paralichthys dentatus</u>	1121
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<u>Parophrys vetulus</u>	1204
<u>Pelomedusa subruta</u>	1206
<u>Phanerodon furcatus</u>	1085
<u>Pipa pipa</u>	1207
<u>Pituophis</u> sp.	1174
<u>Poecilia formosa</u>	1099-1103, 1105
<u>Poecilia reticulata</u>	1223
<u>Pseudotropheus tropheops</u>	1270

R

Rainbow smelt	1163
Rainbow trout	1152, 1158, 1173, 1205, 1382
<u>Rana hexadactylus</u>	1214
<u>Rasbora trilineata</u>	1109
Rat snake	1215, 1216
Red-spotted newt	1135
River lamprey	1181
Roach	1155, 1157
Rockfish	1079
Rock sole	1217
<u>Rutilus rutilus</u>	1155, 1157

S

<u>Salmo aguabonita</u>	1219
<u>Salmo gairdneri</u>	1152, 1158, 1173, 1205, 1382
<u>Salmo salar</u>	1210
<u>Salmo trutta</u>	1090
<u>Salvelinus namaycush</u>	1151, 1209
Scissorstail	1109
Sculpin	1078
Sea bream	1237
Sea catfish	1113
Sea turtle	1164
Sea urchin	1104
<u>Sebastes</u> sp.	1079
<u>Semotilus atromaculatus</u>	1375
Shortfin eel	1108, 1110, 1267
<u>Siganus rivulatus</u>	1236
<u>Sitana ponticeriana</u>	1093
Snapper	1378
Soft-shell clam	1127-1130, 1169, 1274-1374, 1381

RTLA NO.

Southern flounder	1112
<u>Sparus auratus</u>	1237
Speckled sanddab	1081
Spiny dogfish	1221
<u>Spisula solidissima</u>	1227
Spot	1224
<u>Squalus acanthias</u>	1221
Striped bass	1123, 1124, 1220, 1231
Striped mullet	1096, 1111
<u>Stizostedion vitreum vitreum</u>	1136-1146
Summer flounder	1121
Surf clam	1227
Sydney rock oyster	1117

T

Tench	1156
<u>Terrapene carolina</u>	1238, 1239
<u>Terrapene carolina major</u>	1380
Tiger salamander	1133, 1226
<u>Tilapia mossambica</u>	1213A & B
<u>Tinca tinca</u>	1156
Toad	1207
<u>Trichiurus lepturus</u>	1243
Tropical red-eared turtle	1150
Tunicate	1106

V

<u>Varanus komodoensis</u>	1166
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W

Walleye	1136-1146
White croaker	1085
White perch	1222, 1225, 1234
White seaperch	1085

Y

Yellow rat snake	1147
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TEAR OUT ACCESSION SHEET

PLEASE SUBMIT TO:

Dr. John C. Harshbarger
Registry of Tumors in Lower Animals
National Museum of Natural History
Room W216-A
Smithsonian Institution
Washington, D.C., 20560, USA

DATE RECD. _____
CONTRIBUTOR'S NO. _____
RTLA NO. _____
USNM NO. _____
NIH HISTOPATH NO. _____

COMMON NAME _____ FAMILY _____
PHYLUM _____ GENUS _____
CLASS _____ SPECIES _____
ORDER _____

CATEGORY: NEOPLASM _____ INFLAMMATION _____ INFECTION _____ PARASITIC _____ TOXIC _____
DEVELOPMENTAL _____ TRAUMATIC _____ NORMAL _____ OTHER _____

CONTRIBUTOR (NAME & ADDRESS): _____ COLLECTOR (NAME & ADDRESS): _____

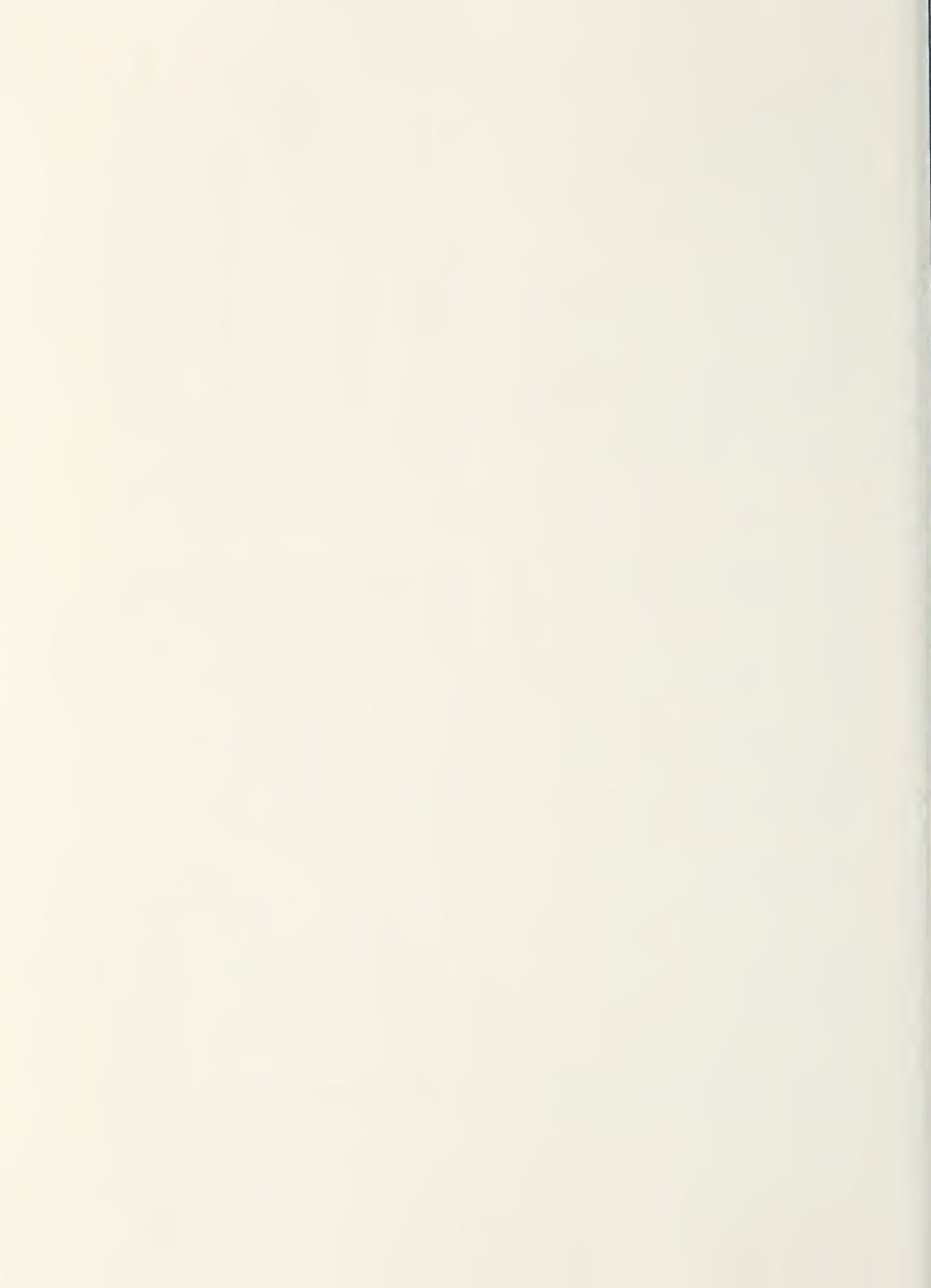
ITEMS SUBMITTED (QUANTITY):

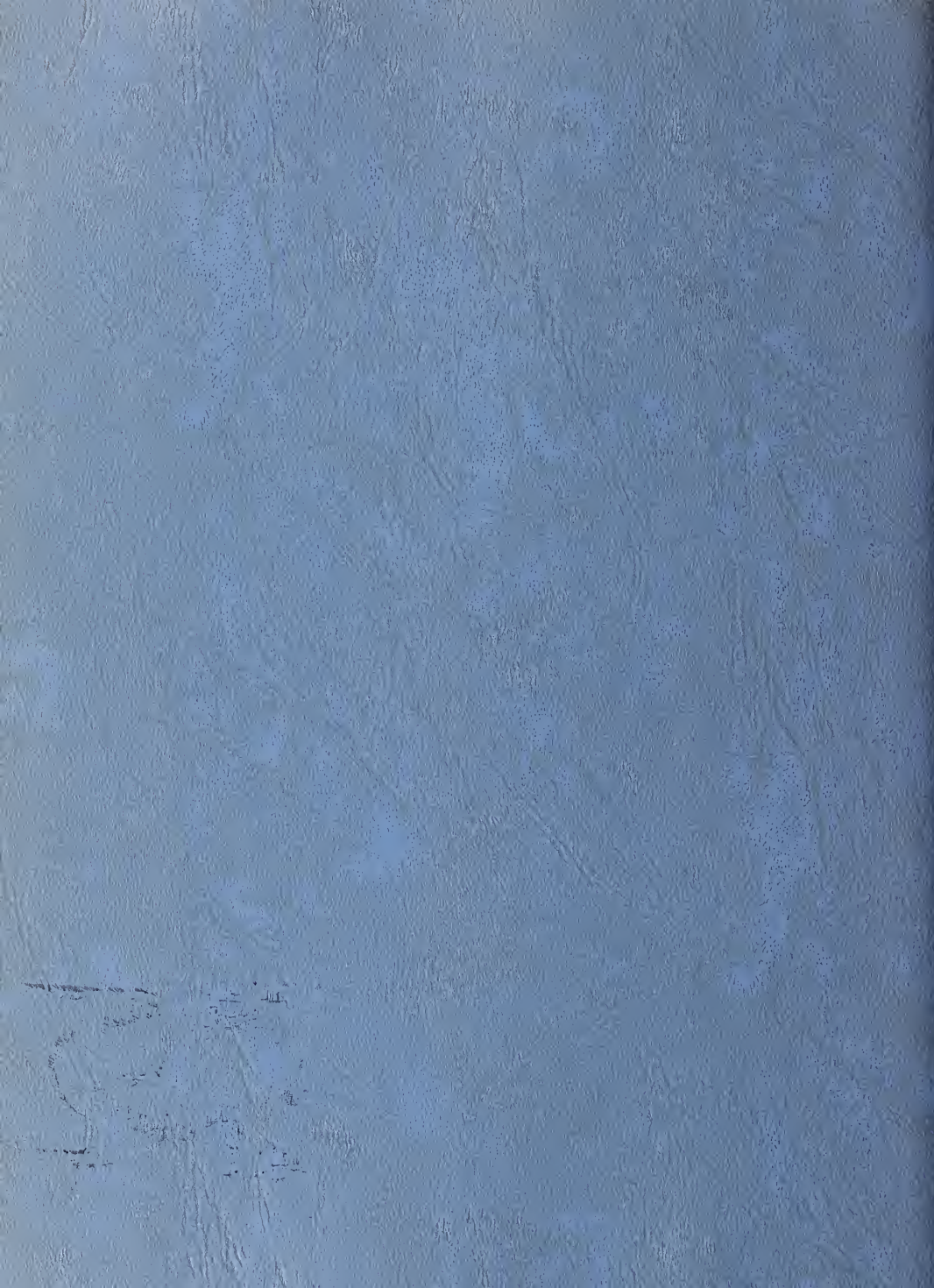
GROSS MATERIAL _____ PHOTOGRAPHS _____
SLIDES _____ REPRINTS _____
BLOCKS _____ OTHER _____
ORIGIN OF ANIMAL: MARINE _____ FRESHWATER _____ ESTUARINE _____ TERRESTRIAL _____
WHERE COLLECTED _____

DATE COLLECTED _____ SEX _____ AGE _____ STAGE OF LIFE CYCLE _____
HOW KILLED _____ FIXATION _____
GROSS DESCRIPTION _____

MICROSCOPE DX _____

COMMENTS (e.g., possible exposure to chemical pollutants or infectious agents, incidence and duration of this condition in the population, etc.)





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ACTIVITIES REPORT
REGISTRY OF TUMORS IN LOWER ANIMALS:

1976 SUPPLEMENT

JOHN C. HARSHBARGER, DIRECTOR

PREPARED FOR DISTRIBUTION BY:
REGISTRY OF TUMORS IN LOWER ANIMALS
NATIONAL MUSEUM OF NATURAL HISTORY
ROOM W-216A
SMITHSONIAN INSTITUTION
WASHINGTON, D.C. 20560





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OVERVIEW

During 1976 the Registry of Tumors in Lower Animals fulfilled one decade as a diagnostic center, a literature center, a specimen depository, a research group, and a general clearinghouse for information on neoplasia and related disorders in invertebrate and poikilothermic vertebrate animals. Its founding in 1966 (initially approved in 1965) was made possible by funds provided by the National Cancer Institute, due largely to the efforts of Drs. Clyde J. Dawe, Harold L. Stewart, Thelma B. Dunn, and Mearl F. Stanton, and by space provided at the Smithsonian Institution due largely to the efforts of Dr. Donald F. Squires.

Two hundred thirteen accessions (several containing multiple specimens) were added to the collection. The phylogenetic and the neoplastic versus non-neoplastic distributions are given in Table I; an itemized list comprises the body of this report. Among those specimens received was material from the largest tumor ever found in a lower animal, a 45 lb. lipoma, from a 400 lb. bluefin tuna (RTLA 1518) contributed by Paul P. Yevich. No epidemiological trend has appeared to suggest a cause for the one to several lipomas discovered annually in fish. Another tuna (albacore) which had an osteoma (RTLA 1384), a type of tumor usually associated with croakers, was contributed by Jerry D. Hendricks. Mr. Yevich also contributed a lymphocytic leukemia in a brook trout (RTLA 1519) and two significant molluscan tumors including a hematopoietic neoplasm of possible amoebocytic origin in a black quahog (RTLA 1392), and a diffuse, undifferentiated sarcoma in an oyster (RTLA 1435). Other molluscan specimens received with neoplastic and non-neoplastic lesions were: a mussel from J. M. Ward, A. Guarino, and W. L. Doyle which had a vesicular connective tissue tumor of the gonad (RTLA 1474); an Asiatic clam from Brian S. Morton with granulomas associated with incubating larvae (RTLA 1391); a three-ridge naiad from Fred Hink and Carol Stein showing inflammatory polyps of the vesicular connective tissue (RTLA 1396); and, hard clams from Sara Otto, Sing C. Chang, and me, containing chlamydial inclusions (RTLA 1414-1418). Chlamydia are obligate, intracytoplasmic, zoonotic procaryotes believed to have evolved from bacteria. They produce psittacosis in many species of birds and a type of pneumonia in humans. This discovery suggests that hard clams and possibly other mollusks play an intermediate host role, which could have large economic and public health significance. A large number of soft clams were received from John Hurst (RTLA 1448-1461) and from Edward Gilfillan (RTLA 1500-1515) from several sites in Maine polluted with various petroleum products. While many of these animals remain to be studied, initial findings confirm Paul Yevich's contention that germinomas arise in some of these populations. A polyoma type virus was also found. A soft clam specimen from the Northeast U.S. coast with a diffuse hematopoietic neoplasm was contributed by Robert Brown (RTLA 1413).

Eight fish cases (RTLA 1478-1485) from coastal waters of southeast Florida were contributed by Walter Kandrashoff who has observed an increase in fish anomalies over the years as water in this area has become more polluted. Two of the lesions were neoplastic -- a neurilemmoma in a mangrove snapper and a mesothelioma in a carp. The other lesions appeared to be parasitic or traumatic. Neurilemmomas had previously been reported in snappers from southwest Florida (Key West/Dry Tortugas) by Lucké in 1942 and are regularly received by the Registry from many species from widespread locations.

Other examples in this report include goldfish from I. M. Obdeyn (RTLA 1436) and R. R. Cowden (RTLA 1393), a brown trout from Barry J. Stevenson (RTLA 1476), two sockeye salmon from Gordon R. Bell (RTLA 1492 and 1493), and a black bullhead from C. Dale Becker (RTLA 1496). A rare albino African lungfish from N. Herwig with a pigmented malignant melanoma (RTLA 1495) and a probable neurofibrosarcoma in a blue gourami from D. O. Carpenter (RTLA 1401) represent two additional neural tumors.

Another block of cases (RTLA 1531-1597) resulted from an Ohio River Valley Water Sanitation Commission survey of the Ohio and Kanawha Rivers coordinated by Bill Klein. Surprisingly, only about four neoplastic lesions (papillomas) were found in this heavily industrialized watershed. Since the method of collection was to rotenone lock chambers, it is quite possible that the older bottom feeders most likely to have tumors are least likely to migrate through lock chambers, and a different sampling method will be needed to collect these fish.

Interesting reptile lesions received included a lymphoblastic leukemia in an Indian monitor lizard from J. N. Shively (RTLA 1499), a fibroblastic sarcoma in a gopher snake from G. Pendlebury (RTLA 1400), a pancreatic adenocarcinoma in a snake (*Spilotes* sp.) from Fred Frye (RTLA 1387), a parathyroid adenoma versus hyperplasia in a Greek tortoise from Fred Frye (RTLA 1402), and papillomatosis in an emerald lizard from O. F. Jackson (RTLA 1389).

An epidermal papilloma versus a low grade papillary carcinoma of a tautog was contributed by Richard Wolke (RTLA 1434). Five flatfish epidermal papillomas were received: one from an unpolluted area of Baja California contributed by Marjorie Sherwood (RTLA 1390), and four from Japan contributed by Keiichi Oishi (RTLA 1486 and 1516) and Takeo Harada (RTLA 1487 and 1517). A paper soon to be published in the "Journal of the National Cancer Institute" by Wellings et al gives evidence that the X-cells in these flatfish tumors and in cod pseudobranch tumors may be unicellular organisms. Other possible unicellular organisms in fish are the rodlets in the frequently seen rodlet cells several examples of which were contributed by E. K. Miller (RTLA 1463-1467). While some people think the rodlets are most likely some type of protozoans, I can see similarities to some of the insect viruses.

In addition to the hematopoietic neoplasms already mentioned, Elisabeth Gateff contributed two mutant *Drosophila* with "malignant blood neoplasms" (RTLA 1489 and 1490). Dr. Gateff has identified more than 15 mutants on three chromosomes that result in neoplasms of various origins. Hematopoietic fish neoplasms also included a lymphosarcoma in a cutthroat trout from Charlie Smith (RTLA 1399) and a northern pike from Gary Hoskins (RTLA 1442).

Liver lesions included a hepatoma in a largescale sucker from C. Dale Becker (RTLA 1395), a hepatoma or possibly a hepatoblastoma in a rainbow trout from Charlie Smith (RTLA 1469), diethylnitrosamine induced hepatomas in Medaka from Takatoshi Ishikawa (RTLA 1426). Michael Sigel contributed a tiger shark with multiple biliary duct cysts (RTLA 1412).

TABLE I

DISTRIBUTION OF LESIONS AMONG SPECIMENS ACCESSIONED

Phylogenetic group	*TYPE OF DISEASE		
	Neoplastic	Non-neoplastic	Not diagnosed
Reptile	10	14	0
Amphibian	0	2	0
Bony fish	44	70	22
Shark	0	1	0
Tunicate	0	1	0
Mollusk	18	12	15
Arthropod	2	0	0
Annelid	0	2	0
Total	74 (34.7%)	102 (47.9%)	37 (17.4%)
Percent of those diagnosed	(42%)	(58%)	
			213 (100%)

Muscle tumors were represented by a rhabdomyoma in a brown trout from Barry J. Stevenson (RTLA 1477) and a leiomyosarcoma in a sockeye salmon from Gordon Bell (RTLA 1475). Other cases of interest include a thyroid adenoma in a butterfly fish from Michael Lagios (RTLA 1439) and in a striped killifish from John Grizzle (RTLA 1525). A poorly-differentiated rainbow trout nephroblastoma was contributed by Harold Wolf (RTLA 1446). A rainbow trout with an ectopic reduplication of visceral organs was received from John Hnath (RTLA 1423) and Bob Anderson sent a sea peach showing excess tunic production in response to a hydrozoan (RTLA 1406).

REFERENCE LIBRARY

Approximately 200 papers were added to the comprehensive library on neoplasms in lower animals bringing the total to 3,150. Except for recent acquisitions and articles that need to be translated, all papers have been abstracted by selected key words and computerized.

PAPERS SINCE 1975

- Billups, L. H. and Harshbarger, J. C. "Reptiles" a Section of the Chapter, "Naturally Occurring Neoplastic Diseases". In: CRC Handbook of Laboratory Animal Science, Vol. 3, E. C. Melby, Jr. and N. H. Altman (ed.), pp. 343-356, (CRC Press, Inc., Cleveland 1976).
- Leibovitz, L., Harshbarger, J. C., and Chanley, P. A Polypoid Myoma of the Foot of a Surf Clam (Spisula solidissima). In: Proceedings of the First International Colloquium on Invertebrate Pathology and IXth Annual Meeting Society for Invertebrate Pathology, Queen's University at Kingston, Canada, 1976, pp. 148-150, (Queen's University 1976).
- Harshbarger, J. C., Shumway, S. E., and Bane, G. W. Variably Differentiating Oral Neoplasms, Ranging from Epidermal Papilloma to Odontogenic Ameloblastoma, in Cunners {(Tautoglabrus adspersus) Osteichthyes; Perciformes: Labridae}. In: Progress in Experimental Tumor Research, Vol. 20, F. Homburger (ser. ed.), Tumors in Aquatic Animals, C. J. Dawe, D. G. Scarpelli, and S. R. Wellings (vol. ed.), pp. 113-128, (Karger, Basel 1976).
- Harshbarger, J. C. Description of Polyps and Epidermal Papillomas in Three Bivalve Mollusk Species. Mar. Fish. Rev., 38: 25-29. 1976.
- Harshbarger, J. C. "Spontaneous Neoplasms in Amphibians" and "Spontaneous Neoplasms in Reptiles," two Sections of Chapter 1: "Tumors". In: Pathology of Laboratory Animals, Vol. 2, K. Benirschke, F. M. Garner, T. C. Jones, and C. Kozma (ed.), (Springer-Verlag, New York; In press).
- Harshbarger, J. C. The Role of the Registry of Tumors in Lower Animals in the Study of Environmental Carcinogenesis in Aquatic Animals. Ann. N. Y. Acad. Sci. (In press).
- Anderson, R. S., Jordan, L. A., and Harshbarger, J. C. Tunic Abnormalities of the Urochordate Halocynthia pyriformis (Rathke). J. Invertebr. Pathol. (In press).

Harshbarger, J. C., Chang, S. C., and Otto, S. V. Chlamydiae (with Phages), Mycoplasmas, and Rickettsiae in Chesapeake Bay Bivalves. Science. (In press).

Rose, F. L. and Harshbarger, J. C. Neoplastic and Possibly Related Skin Lesions in Neotenic Tiger Salamanders, Ambystoma tigrinum, from a Sewage Lagoon. Science. (In press).

SELECTED OTHER ACTIVITIES IN 1976

1. Convened a symposium on invertebrate tumors at the Annual Meeting of the Society for Invertebrate Pathology, Kingston, Ontario, Canada, August 1976, and co-authored one of the presentations at that symposium.
2. Served as Secretary of the Society for Invertebrate Pathology until August 1976 and subsequently as a member of the Permanent Program Committee.
3. Served as Secretary of the Washington, D.C. Chapter of Sigma Xi, The Scientific Research Society of North America.
4. Served as a member of the Planning Committee, as a Session Chairman, and as a speaker at the New York Academy of Sciences Conference entitled: "Aquatic Pollutants and Biological Effects with Emphasis on Neoplasia," held 27-29 September 1976.
5. Served as a member of the Committee on Animal Models and Genetic Stocks of the National Research Council of the National Academy of Sciences.
6. Served as a member of the Interagency Collaborative Group on Environmental Carcinogenesis (chaired by H. F. Kraybill of the U.S. National Cancer Institute).
7. Participated in a cooperative investigation of the etiology of several diseases in bivalve mollusks, supported in part by the U.S. Food and Drug Administration, which has resulted in the discovery of chlamydiae, mycoplasmas, rickettsiae, and polyoma viruses in these animals.
8. Made a field survey of fish collected from nine sites on the Ohio River and one site on the Kanawha River, for tumors, as part of the annual fish survey conducted by the Ohio River Valley Water Sanitation Commission.

PERSONNEL

The Project Officer for the contract is Dr. Clyde J. Dawe, Head, Comparative Oncology Section, Laboratory of Pathology, National Cancer Institute, National Institutes of Health, Bethesda, Maryland, 20014.

The Principal Investigator for the contract is Dr. W. Duane Hope, Chairman, Department of Invertebrate Zoology, National Museum of Natural

History, Smithsonian Institution, Washington, D.C., 20560.

The Staff of the Registry is as follows:

John C. Harshbarger, Ph.D.	- Director
Sing Chen Chang, Ph.D.	- Electron Microscopist
Phyllis M. Schellenger, B.S.	- Registrar
Linda J. Cullen, B.A.	- Histopathology Technician
Judith E. Foster, B.S.	- Research Assistant
Marilyn S. Slatick, B.S.	- Bibliographer

ACCESSIONS

RTLA 1384. Albacore, Thunnus alalunga

Material: Three separate, but consecutive segments of the vertebral column -- 2 "normal"; 1 pathologic -- pathologic segment has an attached ossified growth
Habitat: Northeastern Pacific Ocean
Diagnosis: Osteoma
Submitter: J. D. Hendricks

RTLA 1385. Iguana iguana

Material: Four microscope slides; 1 pathology record
Habitat: Pet; California
Diagnosis: Lymphoma; poorly-differentiated lymphocytic type
Submitter: F. L. Frye

RTLA 1386. Indian monitor lizard, Varanus bengalensis

Material: Five microscope slides
Diagnosis: Osteocartilaginous exostoses
Submitter: F. L. Frye
Reprint: Frye, Fredric L. and Frank Dutra. Multiple Osteocartilaginous Exostoses in a Monitor Lizard, Vet. Med. Small Anim. Clin., 68: 1414-1416. 1973.

RTLA 1387. Spilotes sp.

Material: One microscope slide
Diagnosis: Pancreatic adenocarcinoma
Submitter: F. L. Frye

RTLA 1388. Clemmys sp.

Material: Three microscope slides
Diagnosis: Verrucal papillomatosis
Submitter: F. L. Frye

RTLA 1389. Green lizard, Lacerta viridis

Material: Two, 35 mm color transparencies; 1 pathology record
Diagnosis: Squamous keratotic papillomatosis
Submitter: O. F. Jackson

RTLA 1390. Dover sole, Microstomus pacificus

Material: Granular raised growths which were scattered over the body wall and fins
Habitat: Pacific Ocean off Baja California
Diagnosis: Papilloma
Submitter: M. J. Sherwood
Reprint: Sherwood, Marjorie J. and Alan J. Means. Occurrence of Tumor-Bearing Dover Sole (Microstomus pacificus) Off Point Arguello, California and Off Baja California, Mexico. Trans. Am. Fish. Soc., 105(4): 561-563. 1976.

RTLA 1391. Asiatic clam, Corbicula fluminea

Material: Nine microscope slides representing 4 cases

Habitat: Plover Cove Reservoir, Hong Kong

Diagnosis: Inflammatory granulomas

Submitter: B. Morton

Reprint: Morton, Brian. The Occurrence of Inflammatory Granulomas in the Ctenidial Marsupium of Corbicula fluminea (Muller 1774) (Mollusca; Bivalvia) - Consequence of Larval Incubation. (In preparation).

RTLA 1392. Black quahog, Artica islandica

Material: Fourteen microscope slides (pathologic); 12 microscope slides ("normal")

Habitat: Rhode Island Sound

Diagnosis: Hematopoietic neoplasm, amoeboecytic type

Submitter: P. P. Yevich

RTLA 1393. Goldfish, Carassius auratus

Material: Five microscope slides

Habitat: Outdoor pool

Diagnosis: Neurilemmoma

Submitter: R. R. Cowden

RTLA 1394. Longear sunfish, Lepomis megalotis

Material: Gross specimen

Habitat: Laboratory

Diagnosis: Prolapsed rectum

Submitter: W. E. Smith

RTLA 1395. Largescale sucker, Catostomus macrocheilus

Material: "Diseased" liver including the spleen and part of the intestine

Habitat: Columbia River, Washington

Diagnosis: Well-differentiated hepatoma

Submitter: C. D. Becker

RTLA 1396. Three-ridge naiad, Amblema plicata

Material: One pathologic and one "normal" specimen including soft tissues and 4 shells; 2 black and white photographs

Habitat: Mohican River, Ohio

Diagnosis: Inflammatory polyp

Submitter: W. F. Hink and C. B. Stein

RTLA 1397. Rainbow trout, Salmo gairdneri

Material: Two pieces of tissue from a growth attached to the lower jaw; 2 microscope slides

Habitat: Fish Cultural Development Center, Bozeman, Montana

Diagnosis: Fibroma

Submitter: C. E. Smith

RTLA 1398. Lake trout, Salvelinus namaycush

Material: A piece of tissue from a growth; 4 microscope slides; 2, 35 mm color transparencies

RTLA 1398 (contd.)

Habitat: Flathead Lake, Montana
Diagnosis: Fibrolipoma
Submitter: C. E. Smith

RTLA 1399. Lahontan cutthroat trout, Salmo clarki

Material: Two pieces of tissue from a growth; 2 microscope slides
Habitat: Lahontan National Fish Hatchery, Gardnerville, Nevada
Diagnosis: Lymphosarcoma
Submitter: C. E. Smith

RTLA 1400. Great Basin gopher snake, Pituophis melanoleucus deserticola

Material: Fourteen microscope slides from a growth in the cloacal region; 1 black and white photograph
Habitat: Near Bruneau Dunes State Park, Idaho
Diagnosis: Fibroblastic sarcoma
Submitter: G. Pendlebury

RTLA 1401. Blue gourami, Trichogaster trichopterus sumatranus

Material: One gross specimen with a growth near the base of the tail
Diagnosis: Sarcoma of probable neural origin; neurilemmal sarcoma
Submitter: D. O. Carpenter

RTLA 1402. Greek tortoise, Testudo graeca

Material: One microscope slide
Diagnosis: Parathyroid adenoma versus compensatory hyperplasia
Submitter: F. L. Frye

RTLA 1403, 1404, 1408-1411, 1419, 1421, 1422. Iguana iguana

Material: Two to four microscope slides each; pathology reports for 4 cases
Diagnosis: Metabolic disorder characterized collectively by mineralization of renal vessels, dilation of renal tubules, crystals in lumens of renal tubules and in spleen, histiocytic islands in spleen, collections of mature lymphocytes in liver sinusoids
Submitter: F. L. Frye

RTLA 1405. Rummy nose tetra, Hemigrannus rhodostomus

Material: One gross specimen with a protrusion on the right side
Habitat: The specimen arrived at a San Antonio, Texas, pet shop from a tropical fish wholesaler with the growth already present
Diagnosis: Two cysts containing worm parasites
Submitter: N. Herwig

RTLA 1406. Sea peach, Halocynthia pyriformis

Material: One gross specimen with an exuberant growth of the tunic
Habitat: Bay of Fundy
Diagnosis: Excess tunic production in response to a hydrozoan
Submitter: R. S. Anderson

RTLA 1407. Coho salmon, Oncorhynchus kisutch

Material: One microscope slide

RTLA 1407 (contd.)

Habitat: Pacific Biological Station, Nanaimo, B.C., Canada
Diagnosis: Undifferentiated sarcoma
Submitter: G. E. Hoskins

RTLA 1408-1411. (See RTLA 1403)

RTLA 1412. Tiger shark, Galeocerdo cuvieri

Material: Three microscope slides; 1 pathology report
Diagnosis: Multiple biliary duct cysts
Submitter: M. M. Sigel

RTLA 1413. Soft-shell clam, Mya arenaria

Material: Three microscope slides
Diagnosis: Diffuse neoplasm of hyaline hemocyte origin
Submitter: R. Brown

RTLA 1414-1418. Hard-shell clam, Mercenaria mercenaria

Material: Digestive tissue
Habitat: Maryland part of Chincoteague Bay
Diagnosis: Chlamydiae inclusions
Submitter: S. V. Otto, J. C. Harshbarger, and S. C. Chang
Reprint: Harshbarger, John C., Sing Chen Chang, and S. V. Otto.
Chlamydiae (with Phages), Mycoplasmas, and Rickettsiae
in Chesapeake Bay Bivalves. Science. (In press).

RTLA 1419. (See RTLA 1403)

RTLA 1420. Pacific pond turtle, Clemmys marmorata

Material: Two microscope slides
Diagnosis: Intranuclear virus inclusions in liver, kidney, and spleen
Submitter: F. L. Frye

RTLA 1421 and 1422. (See RTLA 1403)

RTLA 1423. Rainbow trout, Salmo gairdneri

Material: One tissue block
Habitat: Little Manistee River, Michigan
Diagnosis: Ectopic reduplication of visceral organs
Submitter: J. G. Hnath

RTLA 1424. Bullsnaek, Pituophis melanoleucus

Material: Two microscope slides; 1 color transparency
Diagnosis: Algal infection, Prototheca sp., versus fungal infection
Submitter: T. E. Hamm

RTLA 1425. Carp, Cyprinus carpio

Material: One piece of tissue; 2 microscope slides; 2 color transparencies
Habitat: Private pond in Mystic, Connecticut
Diagnosis: Leiomyoma versus teratoma
Submitter: R. E. Wolke

RTLA 1426. Cisco, Coregonus artedii

Material: Section of liver tissue
Habitat: Smith Bay, on the eastern shore of the northern end of
Lake George, New York
Diagnosis: Cholangioma or cholangiocarcinoma
Submitter: C. J. George

RTLA 1427. American anole, Anolis carolinensis

Material: Gross specimen with lump on neck; 2 microscope slides
Habitat: Pet; Maryland
Diagnosis: Epithelial lined cyst of probable pharyngeal origin --
etiology unknown
Submitter: F. McQuay

RTLA 1428. Iguana iguana

Material: Two microscope slides
Habitat: Raised in captivity since 1965; California
Diagnosis: Pyelonephritis
Submitter: F. L. Frye

RTLA 1429. Pacific pond turtle, Clemmys marmorata

Material: Two microscope slides
Diagnosis: Intranuclear virus-like inclusions in liver, kidney, and
spleen
Submitter: F. L. Frye

RTLA 1430 & 1431. Mt. Whitney rainbow trout, Salmo gairdneri

Material: One microscope slide each
Diagnosis: Chronic inflammation and fibrosis with hyperplasia of
overlying lip epidermis, probably due to trauma
Submitter: H. Wolf

RTLA 1432. Earthworm

Material: Two vials -- one containing multiple minute white cysts --
the other containing 3 gross earthworm specimens
Diagnosis: Simultaneous infections of protozoa, nematodes, and
bacteria
Submitter: D. Armstrong, E. L. Cooper, and E. Stein

RTLA 1433. Pacific halibut, Hippoglossus stenolepis

Material: A piece of a large tumor
Diagnosis: Traumatic cyst in body wall
Submitter: G. E. Hoskins

RTLA 1434. Tautog (Black fish), Tautoga onitis

Material: Four pieces of tissue excised from a growth; 2 microscope
slides; 1, 35 mm color transparency
Diagnosis: Epidermal papilloma versus low-grade papillary carcinoma
of the jaw
Submitter: R. E. Wolke

RTLA 1435. American oyster, Crassostrea virginica

RTLA 1435 (contd.)

Material: Two microscope slides
Habitat: New Haven area of Long Island Sound
Diagnosis: Diffuse undifferentiated mesenchymal sarcoma
Submitter: P. P. Yevich

RTLA 1436. Goldfish, Carassius auratus

Material: Four microscope slides; 1 paraffin block; 1 color transparency
Habitat: In summer fish lives in a garden pond; in winter in an aquarium together with 2 other goldfishes
Diagnosis: Neurilemmoma
Submitter: I. M. Obdeyn

RTLA 1437. Red-eared turtle, Chrysemys scripta elegans

Material: One microscope slide
Diagnosis: Leukoplakia and dyskeratosis possibly transitional to a well-differentiated squamous carcinoma
Submitter: F. L. Frye

RTLA 1438. Hard-shell clam, Mercenaria mercenaria

Material: Digestive tissue
Habitat: Maryland part of Chincoteague Bay
Diagnosis: Chlamydiae inclusions
Submitter: S. V. Otto, J. C. Harshbarger, and S. C. Chang
Reprint: (See RTLA 1414-1418)

RTLA 1439. Butterfly fish, Chelmon rostratus

Material: One microscope slide; 2 color transparencies; 3 electron photomicrographs; 1 pathology report
Habitat: A pet in a home aquarium
Diagnosis: Thyroid adenoma
Submitter: M. D. Lagios

RTLA 1440. California moray, Gymnothorax mordax

Material: One microscope slide
Diagnosis: Epidermal papilloma of the lip
Submitter: M. D. Lagios

RTLA 1441. Chinook salmon, Oncorhynchus tshawytscha

Material: Two pieces of body wall from the caudal peduncle with hard fibrous lumps in the muscle
Habitat: Upper Rakaia River, Canterbury, South Island, New Zealand
Diagnosis: Traumatic atrophy of the muscle
Submitter: P. M. Hine

RTLA 1442. Northern pike, Esox lucius

Material: An intact section of fish with an ulcerated lesion; 1 microscope slide; 2 color transparencies
Diagnosis: Lymphosarcoma
Submitter: G. E. Hoskins

RTLA 1443. Rainbow trout, Salmo gairdneri

RTLA 1443 (contd.)

Material: Three microscope slides
Habitat: Mojave River Hatchery, California
Diagnosis: Toxicosis characterized by intestinal peritonitis, liver edema and necrosis, and gill inflammation and microaneurysms
Submitter: H. Wolf

RTLA 1444. American oyster, Crassostrea virginica

Material: One microscope slide; 1 pathology report; 2 reprints
Habitat: Herring Bay: Western shore of Chesapeake Bay
Diagnosis: Xenoma due to ciliated thigmotrichs
Submitter: S. V. Otto

RTLA 1445. Bluntnose minnow, Pimephales notatus

Material: One gross specimen with 3, white, amorphous lesions: on the head; below dorsal fin; and near the vent. Specimen also had numerous cutaneous black spots scattered randomly over the body surface and fins.
Habitat: Trace Creek, Tennessee
Diagnosis: Epidermal hyperplasia and black spot disease characterized by melanophore proliferation in trematode granulomas
Submitter: J. Grizzle

RTLA 1446. Rainbow trout, Salmo gairdneri

Material: One microscope slide
Habitat: Fish Springs Hatchery, California
Diagnosis: Poorly-differentiated nephroblastoma
Submitter: H. Wolf

RTLA 1447. Common shiner, Notropis cornutus

Material: One gross specimen
Habitat: Ramapo River, New York
Diagnosis: Protozoan cysts, probably Myxobolus sp.
Submitter: C. L. Smith

RTLA 1448-1461. Soft-shell clam, Mya arenaria

Material: Several hundred whole clams from 14 petroleum spill sites
Habitat: Searsport, Maine
Diagnosis: Germinomas (RTLA 1453-1458), intranuclear virus-inclusions (RTLA 1458), gill hyperplasia (RTLA 1448-1461), trematode parasites (1448-1461), and cytoplasmic inclusions (RTLA 1448-1451)
Submitter: J. Hurst

RTLA 1462. Montana (Arctic) grayling, Thymallus arcticus

Material: Two microscope slides; 1 paraffin block
Diagnosis: Excavating fungal granuloma of mandible associated with ectopic bone formation
Submitter: C. E. Smith

RTLA 1463-1465. Clownfish, Amphiprion ocellaris

RTLA 1463-1465 (contd.)

Material: Four microscope slides each
Habitat: In vitro spawn
Diagnosis: Rodlet cells
Submitter: E. K. Miller

RTLA 1466. Planehead filefish, Monacanthus hispidus

Material: Two microscope slides
Habitat: Gulf of Mexico
Diagnosis: Rodlet cells
Submitter: E. K. Miller

RTLA 1467. Three-spot damsel, Dascyllus trimaculatus

Material: Two microscope slides
Habitat: South Pacific
Diagnosis: Rodlet cells
Submitter: E. K. Miller

RTLA 1468. Coho salmon, Oncorhynchus kisutch

Material: A large growth and adjacent body wall; 1 microscope slide;
1, 35 mm color transparency
Habitat: French Creek, Vancouver Island, B.C., Canada
Diagnosis: Fibrosarcoma
Submitter: G. E. Hoskins

RTLA 1469. Rainbow trout, Salmo gairdneri

Material: Two pieces of liver tissue; 2 microscope slides
Habitat: Mattawan State Hatchery, Michigan
Diagnosis: Possible hepatoblastoma
Submitter: C. E. Smith

RTLA 1470. Fathead minnow, Pimephales promelas

Material: Two microscope slides
Diagnosis: Liposarcoma (?)
Submitter: C. E. Smith

RTLA 1471. Medaka, Oryzias latipes

Material: Manuscript; 8 color prints; 11 black and white prints
Habitat: Obtained from a commercial breeder; maintained in laboratory tanks
Diagnosis: Diethylnitrosamine induced hepatoma
Submitter: T. Ishikawa
Reprint: Ishikawa, Takatoshi, Tetsuro Shimamine, and Shozo Takayama. Histologic and Electron Microscopy Observations on Diethylnitrosamine-Induced Hepatomas in Small Aquarium Fish (Oryzias latipes). J. Nat. Cancer Inst., 55(4): 909-917. 1975.

RTLA 1472. Earthworm

Material: Three microscope slides
Habitat: Anderson County, Tennessee
Diagnosis: Granulomas due to nematode infestation
Submitter: G. E. Cosgrove

RTLA 1473. Fathead minnow, Pimephales promelas

Material: One half of the head with multiple large tumors; 3 black and white photographs
Diagnosis: Liposarcoma
Submitter: C. E. Smith

RTLA 1474. Mussel, Mytilus sp.

Material: One microscope slide
Habitat: Mt. Desert Island Biological Laboratory, Salsbury Cove, Maine
Diagnosis: Vesicular connective tissue neoplasm in gonad of a hermaphroditic mussel
Submitter: J. M. Ward, A. Guarino, and W. L. Doyle

RTLA 1475. Sockeye salmon, Oncorhynchus nerka

Material: Large growth associated with the ovaries
Diagnosis: Leiomyosarcoma
Submitter: G. R. Bell

RTLA 1476. Brown trout, Salmo trutta

Material: Two microscope slides; 2 color transparencies
Habitat: Lake Benmore, New Zealand
Diagnosis: Neurilemmal sarcoma
Submitter: B. Stevenson

RTLA 1477. Brown trout, Salmo trutta

Material: Two microscope slides; 2 color transparencies
Habitat: Lake Rotorua, New Zealand
Diagnosis: Two lesions: neurilemmal sarcoma; well-differentiated rhabdomyoma
Submitter: B. Stevenson

RTLA 1478. Pinfish, Lagodon (?) rhomboides (?)

Material: Gross specimen with misaligned lower jaw
Habitat: Miamarina -- North Biscayne Bay adjacent to the Miami River, Florida
Diagnosis: Encystment of trematode parasites within the skeletal muscle of the jaw
Submitter: W. Kandrashoff

RTLA 1479. Pinfish, Lagodon (?) rhomboides (?)

Material: Gross specimen with wound-like depression predominantly on right side, dorsally
Habitat: Miamarina -- North Biscayne Bay adjacent to the Miami River, Florida
Diagnosis: Probable trauma; tissue too autolyzed for definitive diagnosis
Submitter: W. Kandrashoff

RTLA 1480. Menhaden, Brevoortia sp.

Material: Two caudal fins with similar raised lesions
Habitat: North Biscayne Bay, Florida
Diagnosis: Healing fractures of the fin ribs, probably due to trauma
Submitter: W. Kandrashoff

- RTLA 1481. Mangrove (gray) snapper, Lutjanus griseus
Material: A spherical growth with some skin and scales attached from the side of the specimen
Habitat: Reef area of South Florida
Diagnosis: Neurilemmoma
Submitter: W. Kandrashoff
- RTLA 1482. Black drum, Pogonias cromis
Material: One eyeball with undilated pupil
Habitat: North Biscayne Bay, Florida
Diagnosis: Undetermined
Submitter: W. Kandrashoff
- RTLA 1483. Atlantic (?) bonito, Sarda (?) sarda (?)
Material: Large piece of body wall with deep ulceration of skin
Habitat: Just off Miami Beach, Florida
Diagnosis: Infection and inflammation following a severe injury to the body wall
Submitter: W. Kandrashoff
- RTLA 1484. Florida pompano, Trachinotus carolinus
Material: Caudal fin with several lumps
Habitat: Probably area around Ft. Pierce, Florida
Diagnosis: Undetermined
Submitter: W. Kandrashoff
- RTLA 1485. Carp, Cyprinus carpio
Material: Large, white spherical growth found lying free in the abdominal cavity
Diagnosis: Mesothelioma of probable ovarian origin
Submitter: W. Kandrashoff
- RTLA 1486. Kareius bicoloratus
Material: One gross specimen with a large lesion involving both the dorsal and ventral sides of the fish and most of the ventral fin
Habitat: Okhotsuk Sea, outside of the Komuke Lake, Mombetsu, Hokkaido Island, Japan
Diagnosis: Epidermal papilloma
Submitter: K. Oishi
Reprint: Oishi, Keiichi, Fumio Yamazaki, and Takeo Harada. Epidermal Papillomas of Flatfish in the Coastal Waters of Hokkaido, Japan. J. Fish. Res. Board Can., 33(9): 2011-2017. 1976.
- RTLA 1487. Starry flounder, Platichthys stellatus
Material: One gross specimen with a large growth involving both the dorsal and ventral sides of the fish and a portion of the ventral fin
Habitat: Okhotsuk Sea, outside of the Komuke Lake, Mombetsu, Hokkaido Island, Japan
Diagnosis: Epidermal papilloma

RTLA 1487 (concl.)

Submitter: T. Harada

Reprint: (See RTLA 1486)

RTLA 1488. Rainbow trout, Salmo gairdneri

Material: One gross specimen with multiple lesions on the body wall and in the webbing of the fins

Diagnosis: Marked basal cell hyperplasia with cellular atypia suggestive of carcinoma in situ

Submitter: C. E. Smith

RTLA 1489. Drosophila melanogaster

Material: One microscope slide

Habitat: Laboratory stock

Diagnosis: Lethal (2) malignant blood neoplasm {1(2)mbn}

Submitter: E. Gateff

Reprint: Gateff, Elisabeth. Neoplasms of Genetic Origin in Drosophila melanogaster. In: Proceedings of the First International Colloquium on Invertebrate Pathology and IXth Annual Meeting Society for Invertebrate Pathology, Queen's University at Kingston, Canada, 1976. pp. 142-146. 1976.

RTLA 1490. Drosophila melanogaster

Material: One microscope slide

Habitat: Laboratory stock

Diagnosis: Lethal (3) malignant blood neoplasm {1(3)mbn}

Submitter: E. Gateff

Reprint: (See RTLA 1489)

RTLA 1491. Rainbow trout, Salmo gairdneri

Material: Two microscope slides

Diagnosis: Epidermal hyperplasia

Submitter: C. E. Smith

RTLA 1492. Sockeye salmon, Oncorhynchus nerka

Material: One microscope slide

Diagnosis: Neurilemmal sarcoma

Submitter: G. R. Bell

RTLA 1493. Sockeye salmon, Oncorhynchus nerka

Material: Two microscope slides

Diagnosis: Neurilemmoma

Submitter: G. R. Bell

RTLA 1494. Dolly Varden, Salvelinus malma

Material: Two microscope slides

Habitat: Ospika River, Williston Lake, B.C., Canada

Diagnosis: Myxofibroma

Submitter: G. E. Hoskins

RTLA 1495. African lungfish (albino), Protopterus dolloi

RTLA 1495 (contd.)

Material: A portion of intestine with the remainder of a black, firm, oval growth; 12, 35 mm color transparencies
Habitat: From collection at the San Antonio Zoological Gardens and Aquarium, San Antonio, Texas
Diagnosis: Melanosarcoma
Submitter: N. Herwig

RTLA 1496. Black bullhead, Ictalurus melas

Material: A large growth removed from the right side of the fish; 2 black and white photographs
Habitat: Laboratory reared for several months
Diagnosis: Neurilemmoma
Submitter: C. D. Becker

RTLA 1497. Hard-shell clam, Mercenaria mercenaria

Material: Digestive tissue
Habitat: Maryland part of the Chincoteague Bay
Diagnosis: Chlamydiae inclusions
Submitter: S. V. Otto, J. C. Harshbarger, and S. C. Chang
Reprint: (See RTLA 1414-1418)

RTLA 1498. Hard-shell clam, Mercenaria mercenaria

Material: Digestive tissue
Habitat: Maryland part of the Chincoteague Bay
Diagnosis: Chlamydiae inclusions
Submitter: S. V. Otto, J. C. Harshbarger, and S. C. Chang
Reprint: (See RTLA 1414-1418)

RTLA 1499. Indian monitor lizard, Varanus bengalensis

Material: Wet tissue; 4 microscope slides
Habitat: Randolph Park Zoo, Tucson, Arizona
Diagnosis: Lymphoblastic leukemia
Submitter: J. N. Shively

RTLA 1500. Soft-shell clam, Mya arenaria

Material: Twenty whole clams
Habitat: Hezzies Point, Maine
Diagnosis: Normal
Submitter: E. Gilfillan

RTLA 1501-1515. Soft-shell clam, Mya arenaria

Material: Several hundred whole clams, total from 15 petroleum spill sites
Habitat: Searsport, Maine
Diagnosis: Germinomas (RTLA 1501, 1503, 1505, 1507-1510, 1513); cytoplasmic inclusions (RTLA 1501-1515); gill hyperplasia (RTLA 1501-1515)
Submitter: E. Gilfillan

RTLA 1516. Limanda schrenki

Material: One gross specimen with a large growth involving both the

RTLA 1516 (contd.)

dorsal and ventral sides of the caudal fin. Specimen also had two growths attached to the webbing of the dorsal fin and opaque, slightly raised patches of skin randomly scattered over the body wall on the ocular side.

Habitat: Notoro Lake, Abashiri City, Japan

Diagnosis: Epidermal papilloma; parasitization by Philometra mariae

Submitter: K. Oishi

RTLA 1517. Limanda schrenki

Material: One gross specimen with a large growth involving both the ocular and blind sides of the fish and a portion of the dorsal fin. Specimen also had two growths attached to the webbing of the dorsal fin.

Habitat: Notoro Lake, Abashiri City, Japan

Diagnosis: Epidermal papilloma; parasitization by Philometra mariae

Submitter: T. Harada

RTLA 1518. Bluefin tunna, Thunnus thynnus

Material: Tissue from a 45 lb. mass located on the back of the fish; 3 microscope slides; 6 paraffin blocks

Habitat: Atlantic Ocean

Diagnosis: Lipoma

Submitter: P. P. Yevich

RTLA 1519. Brook trout, Salvelinus fontinalis

Material: Tissue; 10 microscope slides; 12 paraffin blocks

Diagnosis: Lymphocytic leukemia

Submitter: P. P. Yevich

RTLA 1520. South African clawed frog, Xenopus laevis

Material: Six microscope slides

Habitat: Laboratory

Diagnosis: Ova regression; probably induced by hormone injection being out of phase with the level of ovarian maturation

Submitter: G. E. Cosgrove

RTLA 1521. Spot, Leiostomus xanthurus

Material: Gross specimen with a growth displacing the pectoral fin. Specimen also had mucus-like, opaque patches of skin randomly scattered over the body wall.

Habitat: Patuxent River, Maryland

Diagnosis: Microsporidan xenoma

Submitter: J. Peng

RTLA 1522. Chinook salmon, Oncorhynchus tshawytscha

Material: A portion of body wall with an attached protruding ulcerated lesion

Habitat: Little Manistee River, near Manistee, Michigan

Diagnosis: Well-differentiated fibrosarcoma

Submitter: J. G. Hnath

RTLA 1523. Marine toad, Bufo marinus

Material: One gross specimen with multiple, cyst-like lesions on liver
Habitat: Probably collected in Barro Colorado Islands, Panama
Diagnosis: Parasitic cysts containing egg-laden trematodes
Submitter: G. R. Zug

RTLA 1524. Green lizard, Lacerta viridis

Material: Three microscope slides; 2 color transparencies
Habitat: Pet
Diagnosis: Verrucal type of squamous papillomatosis
Submitter: O. F. Jackson

RTLA 1525. Striped killifish, Fundulus majalis

Material: One gross specimen with a growth protruding from under the opercula
Diagnosis: Thyroid hyperplasia (colloid goiter)
Submitter: J. Grizzle

RTLA 1526. Banded cichlid (?), Cichlasoma severum

Material: Three pieces of tissue from a growth just below skin between swimbladder and gill chamber
Habitat: Aquarium
Diagnosis: Renal tubular carcinoma versus nephroblastoma
Submitter: J. Grizzle

RTLA 1527. Largemouth bass, Micropterus salmoides

Material: Two portions of body wall with nodules associated with muscle just under the skin
Habitat: Table Rock Reservoir, near Branson, Missouri
Diagnosis: Multiple infectious granulomas
Submitter: J. Grizzle

RTLA 1528. Largemouth bass, Micropterus salmoides

Material: Lower jaw with growth
Diagnosis: Osteochondroma versus a healing fracture
Submitter: J. Grizzle

RTLA 1529. Gulf menhaden, Brevoortia patronus

Material: One gross specimen with a growth attached to the left side of the upper jaw
Habitat: Gulf Shores, Alabama
Diagnosis: Edematous snout
Submitter: J. Grizzle

RTLA 1530. Bluegill, Lepomis macrochirus

Material: The caudal fin and adjacent body wall with a growth near the base of the caudal fin
Habitat: Farm pond, Haralson County, Georgia
Diagnosis: Granuloma
Submitter: J. Grizzle

RTLA 1531. Carp, Cyprinus carpio

Material: One gross specimen with a black spot at the fork of the caudal fin

Habitat: Ohio River; Dashfield Lock and Dam (L & D)

Diagnosis: Chronic inflammatory reaction

Submitter: ORSANCO Survey

RTLA 1532. Carp, Cyprinus carpio

Material: Eroded caudal, pectoral and pelvic fins

Habitat: Ohio River; Dashfield L & D

Diagnosis: Not processed

Submitter: ORSANCO Survey

RTLA 1533. White catfish, Ictalurus catus

Material: Kidney with a white body; a small mesenteric cyst

Habitat: Ohio River; Dashfield L & D

Diagnosis: Normal stannius body; cyst not determined

Submitter: ORSANCO Survey

RTLA 1534. White catfish, Ictalurus catus

Material: Fish head with lesion under jaw

Habitat: Ohio River; Dashfield L & D

Diagnosis: Ulcerated inflammatory reaction

Submitter: ORSANCO Survey

RTLA 1535. White catfish, Ictalurus catus

Material: Stannius bodies

Habitat: Ohio River; Dashfield L & D

Diagnosis: Normal

Submitter: ORSANCO Survey

RTLA 1536. Minnow

Material: Gross specimen with a ventral lesion behind the lower jaw

Habitat: Ohio River; Hannibal L & D

Diagnosis: Bacterial granuloma

Submitter: ORSANCO Survey

RTLA 1537. Catfish

Material: A piece of tissue; fish had discolorations on the right side, dorsally, just posterior to the operculum

Habitat: Ohio River; Hannibal L & D

Diagnosis: Dermal inflammation overlain by thinned goblet cell less epidermis

Submitter: ORSANCO Survey

RTLA 1538. Gizzard shad, Dorosoma cepedianum

Material: Fish head with corneal overgrowth

Habitat: Ohio River; Hannibal L & D

Diagnosis: Hemorrhage and fibrosis

Submitter: ORSANCO Survey

RTLA 1539. Flathead catfish, Pylodictis olivaris

RTLA 1539 (contd.)

Material: Viscera
Habitat: Ohio River; Hannibal L & D
Diagnosis: Hepatic arteritis
Submitter: ORSANCO Survey

RTLA 1540. Channel catfish, Ictalurus punctatus

Material: Gut with parasite; eye lesion
Habitat: Ohio River; Hannibal L & D
Diagnosis: Cestode; paraorbital inflammation and scarring
Submitter: ORSANCO Survey

RTLA 1541. Channel catfish, Ictalurus punctatus

Material: Two pieces of anal tissue showing apparent erosion
Habitat: Ohio River; Hannibal L & D
Diagnosis: Ulcerative inflammatory reaction
Submitter: ORSANCO Survey

RTLA 1542. Channel catfish, Ictalurus punctatus

Material: Two pieces of a black skin lesion
Habitat: Ohio River; Hannibal L & D
Diagnosis: Epidermoid cyst
Submitter: ORSANCO Survey

RTLA 1543. Channel catfish, Ictalurus punctatus

Material: Skin lesion removed from lower jaw
Habitat: Ohio River; Hannibal L & D
Diagnosis: Inflammation of the dermis
Submitter: ORSANCO Survey

RTLA 1544. Bullhead, Ictalurus sp.

Material: Caudal fin with pigmented spot
Habitat: Ohio River; Hannibal L & D
Diagnosis: Partially sloughed epidermis allowed basal melanin layer to show through
Submitter: ORSANCO Survey

RTLA 1545. Channel catfish, Ictalurus punctatus

Material: An opaque eye
Habitat: Ohio River; Hannibal L & D
Diagnosis: Inflammation and fibrosis of anterior chamber
Submitter: ORSANCO Survey

RTLA 1546. Carp, Cyprinus carpio

Material: Two opaque eyes
Habitat: Ohio River; Hannibal L & D
Diagnosis: Paraorbital hemorrhage
Submitter: ORSANCO Survey

RTLA 1547. Mirror scale carp, Cyprinus carpio

Material: Right pectoral fin with pigmented spot
Habitat: Ohio River; Hannibal L & D

RTLA 1547 (contd.)

Diagnosis: Inflammation and epidermal exfoliation due to bacterial infection
Submitter: ORSANCO Survey

RTLA 1548. Channel catfish, Ictalurus punctatus

Material: Liver lesions
Habitat: Ohio River; Hannibal L & D
Diagnosis: Helminthic and protozoan granulomas
Submitter: ORSANCO Survey

RTLA 1549. Carp, Cyprinus carpio

Material: Liver lesion
Habitat: Ohio River; Hannibal L & D
Diagnosis: Granuloma
Submitter: ORSANCO Survey

RTLA 1550. Carp, Cyprinus carpio

Material: Skin lesions on both sides of the caudal peduncle
Habitat: Ohio River; Pike Island L & D
Diagnosis: Not processed
Submitter: ORSANCO Survey

RTLA 1551. Spotted bass, Micropterus punctulatus

Material: A small piece of oral mucosa with plaque
Habitat: Ohio River; Pike Island L & D
Diagnosis: Ulcerative inflammatory reaction containing bacteria
Submitter: ORSANCO Survey

RTLA 1552. Carp, Cyprinus carpio

Material: Operculum with hemorrhagic raised plaque
Habitat: Ohio River; Pike Island L & D
Diagnosis: Epidermal papilloma
Submitter: ORSANCO Survey

RTLA 1553. Carp, Cyprinus carpio

Material: Right operculum with protrusion on posterior edge
Habitat: Ohio River; Pike Island L & D
Diagnosis: Bone deformity associated with an old fracture
Submitter: ORSANCO Survey

RTLA 1554. Mimic shiner, Notropis volucellus

Material: One gross specimen with a lesion near the vent
Habitat: Ohio River; Pike Island L & D
Diagnosis: Helminthic granuloma and ectopic fat
Submitter: ORSANCO Survey

RTLA 1555. Brown bullhead, Ictalurus nebulosus

Material: A portion of body wall with spots and mucus-like patches on skin
Habitat: Ohio River; Belleville L & D
Diagnosis: Epidermis containing large numbers of alarm cells and goblet cells

RTLA 1555 (contd.)

Submitter: ORSANCO Survey

RTLA 1556. Gizzard shad, Dorosoma cepedianum

Material: A lump

Habitat: Ohio River; Belleville L & D

Diagnosis: Not processed

Submitter: ORSANCO Survey

RTLA 1557. Brown bullhead, Ictalurus nebulosus

Material: A piece of body wall with crater-like (eroded) lesions on the skin

Habitat: Ohio River; Belleville L & D

Diagnosis: Inflammation and ulceration of skin; atrophy of adjacent muscle

Submitter: ORSANCO Survey

RTLA 1558. Channel catfish, Ictalurus punctatus

Material: A piece of body wall with skin lesions

Habitat: Ohio River; Belleville L & D

Diagnosis: Tissue on slides not diagnostic

Submitter: ORSANCO Survey

RTLA 1559. Channel catfish, Ictalurus punctatus

Material: Two pieces of tissue (red lesions on belly)

Habitat: Ohio River; Gallipolis L & D

Diagnosis: Ulcerative, hemorrhagic, inflammatory reaction

Submitter: ORSANCO Survey

RTLA 1560. Flathead catfish, Pylodictis olivaris

Material: A piece of tissue probably removed from the upper jaw because of discoloration

Habitat: Ohio River; Meldahl L & D

Diagnosis: Ulcerated, inflammatory reaction

Submitter: ORSANCO Survey

RTLA 1561. Flathead catfish, Pylodictis olivaris

Material: A small piece of body wall with a small, oval, flat lesion

Habitat: Ohio River; Meldahl L & D

Diagnosis: Tissue on slides not diagnostic

Submitter: ORSANCO Survey

RTLA 1562. Flathead catfish, Pylodictis olivaris

Material: Lump in body wall

Habitat: Ohio River; Meldahl L & D

Diagnosis: Dermal inflammatory reaction

Submitter: ORSANCO Survey

RTLA 1563. Flathead catfish, Pylodictis olivaris

Material: Liver with several black pigmented areas

Habitat: Ohio River; Meldahl L & D

Diagnosis: Hemosiderosis

Submitter: ORSANCO Survey

- RTLA 1564. Channel catfish, Ictalurus punctatus
Material: Two pieces of tissue; upper jaw lesion
Habitat: Ohio River; Meldahl L & D
Diagnosis: Ulcerated, inflammatory reaction
Submitter: ORSANCO Survey
- RTLA 1565. Channel catfish, Ictalurus punctatus
Material: Fatty nodules
Habitat: Ohio River; Meldahl L & D
Diagnosis: Lymphocystis
Submitter: ORSANCO Survey
- RTLA 1566. Carp, Cyprinus carpio
Material: Protruding growth below eye
Habitat: Ohio River; McAppline L & D
Diagnosis: Bone deformity
Submitter: ORSANCO Survey
- RTLA 1567. Gizzard shad, Dorosoma cepedianum
Material: White muscle-like tissue surrounding the right pelvic fin; fin spines protrude through the growth
Habitat: Ohio River; McAppline L & D
Diagnosis: Edematous, inflammatory reaction
Submitter: ORSANCO Survey
- RTLA 1568. Crappie, Pomoxis sp.
Material: Gross specimen with lymphocystis- (tapioca) like growth on anal and caudal fins
Habitat: Ohio River; McAppline L & D
Diagnosis: Lymphocystis
Submitter: ORSANCO Survey
- RTLA 1569. Carp, Cyprinus carpio
Material: An eye completely occluded
Habitat: Ohio River; Markland L & D
Diagnosis: Eye replaced by multiple granulomas
Submitter: ORSANCO Survey
- RTLA 1570. Carp, Cyprinus carpio
Material: Eye socket with missing orbit
Habitat: Ohio River; Markland L & D
Diagnosis: Fatty replacement
Submitter: ORSANCO Survey
- RTLA 1571. Carp, Cyprinus carpio
Material: Darkly pigmented lesion from behind the operculum
Habitat: Ohio River; Markland L & D
Diagnosis: Not processed
Submitter: ORSANCO Survey
- RTLA 1572. Carp, Cyprinus carpio
Material: Two pieces of tissue; both appear to be eye remnants
Habitat: Ohio River; Markland L & D

RTLA 1572 (contd.)

Diagnosis: Inflammatory reaction
Submitter: ORSANCO Survey

RTLA 1573. Channel catfish, Ictalurus punctatus

Material: Slightly raised milky skin on lower jaw
Habitat: Ohio River; Gallipolis L & D
Diagnosis: Granuloma
Submitter: ORSANCO Survey

RTLA 1574. Channel catfish, Ictalurus punctatus

Material: Flush black spot on lower jaw
Habitat: Ohio River; Gallipolis L & D
Diagnosis: Epidermal hyperplasia associated with chronic inflammatory reaction
Submitter: ORSANCO Survey

RTLA 1575. Brown bullhead, Ictalurus nebulosus

Material: Gross specimen with rugose growth on the upper lip; the growth extended inside the mouth
Habitat: Ohio River; Belleville L & D
Diagnosis: Epidermal papilloma
Submitter: ORSANCO Survey

RTLA 1576. Channel catfish, Ictalurus punctatus

Material: A large piece of body wall with minute, flush, dark splotches
Habitat: Kanawha River; Winfield L & D
Diagnosis: Dermal papillae reach surface, normal
Submitter: ORSANCO Survey

RTLA 1577. Channel catfish, Ictalurus punctatus

Material: Liver with white lesions
Habitat: Kanawha River; Winfield L & D
Diagnosis: Multiple granulomas
Submitter: ORSANCO Survey

RTLA 1578. Channel catfish, Ictalurus punctatus

Material: Hemorrhagic liver
Habitat: Kanawha River; Winfield L & D
Diagnosis: Granuloma
Submitter: ORSANCO Survey

RTLA 1579. Channel catfish, Ictalurus punctatus

Material: White, mottled, dome-shaped bodies in kidney
Habitat: Kanawha River; Winfield L & D
Diagnosis: Normal stannius bodies
Submitter: ORSANCO Survey

RTLA 1580. Channel catfish, Ictalurus punctatus

Material: Multiple, white, dome-shaped lesions in the liver
Habitat: Kanawha River; Winfield L & D
Diagnosis: Helminthic granulomas

RTLA 1580 (contd.)

Submitter: ORSANCO Survey

RTLA 1581. Channel catfish, Ictalurus punctatus

Material: Spleen

Habitat: Kanawha River; Winfield L & D

Diagnosis: Normal

Submitter: ORSANCO Survey

RTLA 1582. Channel catfish, Ictalurus punctatus

Material: Liver and mesentery with 3 discrete, white, dome-shaped lesions embedded in the liver

Habitat: Kanawha River; Winfield L & D

Diagnosis: Multiple granulomas

Submitter: ORSANCO Survey

RTLA 1583. Carp, Cyprinus carpio

Material: Unattached mass from under swim bladder, near kidney

Habitat: Kanawha River; Winfield L & D

Diagnosis: Dry abscess containing bacteria

Submitter: ORSANCO Survey

RTLA 1584. Channel catfish, Ictalurus punctatus

Material: Liver with multiple, discrete, white lesions; liver also pale around edges

Habitat: Kanawha River; Winfield L & D

Diagnosis: Granulomas

Submitter: ORSANCO Survey

RTLA 1585. Spotted sucker, Minytrema melanops

Material: Liver with very slight darkening in lobe

Habitat: Kanawha River; Winfield L & D

Diagnosis: Helminthic granulomas in mesentery

Submitter: ORSANCO Survey

RTLA 1586. Smallmouth buffalo, Ictiobus bubalus

Material: Liver

Habitat: Ohio River; Cannelton L & D

Diagnosis: Tissue on slides not diagnostic

Submitter: ORSANCO Survey

RTLA 1587. River carpsucker, Carpionodes carpio

Material: Fish head with small, white nasal protrusion

Habitat: Ohio River; Cannelton L & D

Diagnosis: Cartilaginous metaplasia of connective tissue associated with underlying parasitic granulomas

Submitter: ORSANCO Survey

RTLA 1588. Carp, Cyprinus carpio

Material: A dome-shaped bony projection from the hard palate

Habitat: Ohio River; Cannelton L & D

Diagnosis: Abnormal osseous projection of palatine bone

Submitter: ORSANCO Survey

- RTLA 1589. Channel catfish, Ictalurus punctatus
Material: Caudal peduncle with a white, dome-shaped protrusion
Habitat: Ohio River; Cannelton L & D
Diagnosis: Protozoan cyst
Submitter: ORSANCO Survey
- RTLA 1590. White catfish, Ictalurus catus
Material: Liver with a small protrusion
Habitat: Ohio River; Cannelton L & D
Diagnosis: Multiple helminthic granulomas
Submitter: ORSANCO Survey
- RTLA 1591. Channel catfish, Ictalurus punctatus
Material: A piece of body wall with flush, white blemishes in the skin
Habitat: Ohio River; Cannelton L & D
Diagnosis: Patches of intradermal, chronic, inflammatory reaction
Submitter: ORSANCO Survey
- RTLA 1592. Channel catfish, Ictalurus punctatus
Material: Liver and mesentery with several discrete, oval, white growths
Habitat: Ohio River; Cannelton L & D
Diagnosis: Multiple granulomas
Submitter: ORSANCO Survey
- RTLA 1593. Buffalo, Ictiobus sp.
Material: Posterior portion of fish with a palpable lump in muscle dorsal to lateral line, anterior to caudal fin
Habitat: Ohio River; Uniontown L & D
Diagnosis: Hyperplastic nodule of metabolic fat
Submitter: ORSANCO Survey
- RTLA 1594. Buffalo, Ictiobus sp.
Material: Posterior portion of fish with a palpable lump in muscle dorsal to lateral line, anterior to caudal fin
Habitat: Ohio River; Uniontown L & D
Diagnosis: Not processed
Submitter: ORSANCO Survey
- RTLA 1595. Carp, Cyprinus carpio
Material: Liver with multiple minute black spots
Habitat: Ohio River; Uniontown L & D
Diagnosis: Multiple granulomas
Submitter: ORSANCO Survey
- RTLA 1596. Paddlefish, Polyodon spathula
Material: Gastric caeca from two fish with raised, multiple lumps
Habitat: Ohio River; Uniontown L & D
Diagnosis: Helminthic granulomas in muscularis
Submitter: ORSANCO Survey
- RTLA 1597. White catfish, Ictalurus catus

RTLA 1597 (contd.)

Material: Liver with white lesions
Habitat: Ohio River; Dashfield L & D
Diagnosis: Helminthic granulomas
Submitter: ORSANCO Survey

RTLA 1598. Coho salmon, Oncorhynchus kisutch

Material: Two microscope slides
Habitat: Strait of Georgia, Canada
Diagnosis: Neurofibroma
Submitter: G. R. Bell

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<u>Mussel</u>	1474
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<u>Mytilus sp.</u>	1474

N

<u>Northern pike</u>	1442
<u>Notropis cornutus</u>	1447
<u>Notropis volucellus</u>	1554

O

<u>Oncorhynchus kisutch</u>	1407, 1468, 1598
<u>Oncorhynchus nerka</u>	1475, 1492, 1493
<u>Oncorhynchus tshawytscha</u>	1441, 1522
<u>Oryzias latipes</u>	1471

P

<u>Pacific halibut</u>	1433
<u>Pacific pond turtle</u>	1420, 1429
<u>Paddlefish</u>	1596
<u>Pimephales notatus</u>	1445
<u>Pimephales promelas</u>	1470, 1473
<u>Pinfish</u>	1478, 1479
<u>Pituophis melanoleucus</u>	1424
<u>Pituophis melanoleucus deserticola</u>	1400
<u>Planehead filefish</u>	1466
<u>Platichthys stellatus</u>	1487
<u>Pogonias cromis</u>	1482
<u>Polyodon spathula</u>	1596
<u>Pomoxis sp.</u>	1568
<u>Protopterus dolloi</u>	1495
<u>Pylodictis olivaris</u>	1539, 1560-1563

R

<u>Rainbow trout</u>	1397, 1423, 1443, 1446, 1469, 1488, 1491
<u>Red-eared turtle</u>	1437
<u>River carpsucker</u>	1587
<u>Rummy nose tetra</u>	1405

S

<u>Salmo clarki</u>	1399
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RTLA NUMBER

<u>Salmo gairdneri</u>	1397, 1423, 1430, 1431, 1443, 1446, 1469, 1488, 1491
<u>Salmo trutta</u>	1476, 1477
<u>Salvelinus fontinalis</u>	1519
<u>Salvelinus malma</u>	1494
<u>Salvelinus namaycush</u>	1398
<u>Sarda sarda</u>	1483
Sea peach	1406
Smallmouth buffalo	1586
Sockeye salmon	1475, 1492, 1493
Soft-shell clam	1413, 1448-1461, 1500-1515
South African clawed frog	1520
<u>Spilotes</u> sp.	1387
Spot	1521
Spotted bass	1551
Spotted sucker	1585
Starry flounder	1487
Striped killifish	1525

T

<u>Tautog</u>	1434
<u>Tautoga onitis</u>	1434
<u>Testudo graeca</u>	1402
Three-ridge naiad	1396
Three-spot damsel	1467
<u>Thunnus alalunga</u>	1384
<u>Thunnus thynnus</u>	1518
<u>Thymallus arcticus</u>	1462
Tiger shark	1412
<u>Trachinotus carolinus</u>	1484
<u>Trichogaster trichopterus sumatranus</u>	1401

V

<u>Varanus bengalensis</u>	1386, 1499
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W

White catfish	1533-1535, 1590, 1597
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<u>Xenopus laevis</u>	1520
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TEAR OUT ACCESSION SHEET

PLEASE SUBMIT TO:

Dr. John C. Harshbarger
Registry of Tumors in Lower Animals
National Museum of Natural History
Room W216-A
Smithsonian Institution
Washington, D.C., 20560, USA

DATE RECD. _____
CONTRIBUTOR'S NO. _____
RTLA NO. _____
USNM NO. _____
NIH HISTOPATH NO. _____

COMMON NAME _____ FAMILY _____
PHYLUM _____ GENUS _____
CLASS _____ SPECIES _____
ORDER _____

CATEGORY: NEOPLASM _____ INFLAMMATION _____ INFECTION _____ PARASITIC _____ TOXIC _____
DEVELOPMENTAL _____ TRAUMATIC _____ NORMAL _____ OTHER _____

CONTRIBUTOR (NAME & ADDRESS): _____ COLLECTOR (NAME & ADDRESS): _____

ITEMS SUBMITTED (QUANTITY):

GROSS MATERIAL _____ PHOTOGRAPHS _____
SLIDES _____ REPRINTS _____
BLOCKS _____ OTHER _____

ORIGIN OF ANIMAL: MARINE _____ FRESHWATER _____ ESTUARINE _____ TERRESTRIAL _____
WHERE COLLECTED _____

DATE COLLECTED _____ SEX _____ AGE _____ STAGE OF LIFE CYCLE _____
HOW KILLED _____ FIXATION _____
GROSS DESCRIPTION _____

MICROSCOPE DX _____

COMMENTS (e.g., possible exposure to chemical pollutants or infectious agents, incidence and duration of this condition in the population, etc.)

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Zool.

ACTIVITIES REPORT
REGISTRY OF TUMORS IN LOWER ANIMALS
1977 SUPPLEMENT

JOHN C. HARSHBARGER, DIRECTOR

PREPARED FOR DISTRIBUTION BY:
REGISTRY OF TUMORS IN LOWER ANIMALS
NATIONAL MUSEUM OF NATURAL HISTORY
ROOM W216A
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OVERVIEW

The Registry of Tumors in Lower Animals facilitates the study of neoplasms and related disorders in invertebrate and poikilothermic vertebrate animals by serving as a specimen depository, a diagnostic center, an information center, and a research group.

Two hundred thirty-nine accessions were entered into the Registry's permanent collection in 1977. As shown in Table I, slightly over one-half were neoplasms which occurred, in decreasing numbers, in bivalve mollusks, bony fish, amphibians, reptiles, and one shark.

Among the many interesting and significant cases received was an oyster contributed by John A. Couch (RTLA 1599) with both a Dermocystidium marinum infection and the condition widely interpreted as a hematopoietic neoplasm characterized by a diffuse infiltration of small, unassociated, uniform, rapidly proliferating cells. This case, coupled with "Dermo" only cases and "hematopoietic neoplasm" only cases, would seem to provide conclusive evidence that the populations of proliferating, infiltrating cells known from at least six bivalve species are hematopoietic neoplasms rather than a stage of Dermocystidium marinum as once proposed.

Other mollusks with neoplasms included Australian rock oysters from Peter H. Wolf with mantle papillomas (RTLA 1608-1614, 1795); American oysters from Sara V. Otto with hematopoietic neoplasms (RTLA 1749, 1750, 1752-1754, 1757-1761, 1765), undifferentiated sarcomas (RTLA 1763, 1764), a germinoma (RTLA 1748), and cryptic adenomatous hyperplasias of the mantle (RTLA 1751, 1755, 1756, 1762); European flat oysters from Paul van Banning with hematopoietic neoplasms (RTLA 1808, 1809); a mussel from David J. Alderman with a hematopoietic neoplasm (RTLA 1833); a scallop with a possible hematopoietic neoplasm from Robert S. Brown (RTLA 1834); and, soft-shell clams from Paul P. Yevich with germinomas from the Searsport, Maine, oil spill site (RTLA 1694-1703). With regard to soft-clam germinomas, we recently found intranuclear virus-like inclusions in the tumor cells and Dr. Sing Chen Chang, the Registry's Electron Microscopist, is attempting to verify their viral nature. Thus, these germinomas may be caused by a virus with possible activation and/or enhancement by stress from petroleum hydrocarbons rather than by direct chemical carcinogenesis.

Mollusk accessions containing basophilic cytoplasmic inclusions, included soft-shell clams (RTLA 1620-1640), a hard-shell clam (RTLA 1766), and American oysters (RTLA 1735, 1736) from Sara V. Otto; mussels from Paul P. Yevich and Carolyn A. Barszcz (RTLA 1741-1743); and, a thin tellin from James S. Buchanan (RTLA 1810). These inclusions have recently been found to be very widespread and to represent infections by procaryotic organisms such as chlamydiae, rickettsiae, and possibly mycoplasmas.

One possible shark neoplasm was received from S. Gruber, W. Riemer, and M. Michael Sigel (RTLA 1836). The lesion was either an adenoma or hyperplasia of probable thyroid origin in a nurse shark. Lack of a definitive diagnosis was partly due to an unfamiliarity with the normal histology.

TABLE I
DISTRIBUTION OF LESIONS AMONG SPECIMENS ACCESSIONED

Phylogenetic group	TYPE OF DISEASE			Total
	Neoplastic	Non-neoplastic	Not diagnosed	
Reptile	9	11	0	20 (8%)
Amphibian	23	10	1	34 (14%)
Bony fish	40	39	2	81 (34%)
Shark	1	0	0	1 (<1%)
Echinoderm	0	1	0	1 (<1%)
Arthropod	0	4	0	4 (2%)
Mollusk	47	44	7	97 (41%)
Total	121 (50%)	109 (46%)	10 (4%)	239 (100%)
Percent of those diagnosed	(52%)	(48%)		

Neoplasms of neural origin predominated the bony fish accessions including three of only five central nervous system tumors ever received. Peripheral nerve tumors included a ganglioneuroma in a weakfish from D. E. Zwerner and Craig L. Ruddell (RTLA 1605); neurilemmomas/neurilemmal sarcomas in carp from George C. Blasiola, Jr. (RTLA 1618) and Dave Tomljanovich (RTLA 1747); in rainbow trout from Peter H. Wolf (RTLA 1642) and Barry J. Stevenson (RTLA 1786), and in goldfish from Harold Wolf (RTLA 1643) and Robert Marino (RTLA 1771); a malignant melanophoroma in an aquarium catfish from June Herrin (RTLA 1647); a blue nevus in a trevally from Barry J. Stevenson (RTLA 1694); and, a neural fibrosarcoma whose species and contributor are unknown (RTLA 1658). The central nervous system tumors were a well-differentiated olfactory neuroepithelioma in a carp from Prince Masahito Hitachi (RTLA 1707) and two ependymoblastomas in coho salmon, one from Gary E. Hoskins (RTLA 1783) and one from Jerry D. Hendricks (RTLA 1811).

Renal neoplasms included nephroblastomas in a rainbow trout from Harold Wolf (RTLA 1615), a rose bitterling from Prince Masahito Hitachi (RTLA 1711), and a carp from George C. Blasiola, Jr. (RTLA 1775). Muscle tumors included dramatic virus-containing leiomyosarcomas in swim bladders of cultured Atlantic salmon from Ian J. McKnight and K. G. R. Elson (RTLA 1660); a leiomyoma in a brown trout from Barry J. Stevenson (RTLA 1651); and, a rhabdomyosarcoma induced in a platyfish swordtail backcross hybrid with N-methyl-N-nitroso-urea from M. Schwab (RTLA 1732). Dr. Schwab also induced a fibrosarcoma in these hybrids with the same compound (RTLA 1733). An undifferentiated spindle cell sarcoma in a chinook salmon from Barry J. Stevenson (RTLA 1785) may be an embryonal rhabdomyoma. Huge cranial lipoma-like lesions, induced in fathead minnows with ammonia, were contributed by Charlie E. Smith (RTLA 1653-1657) and further experiments are in progress to determine if they are neoplastic or hyperplastic. J. Pal contributed a lipoma in a catfish (RTLA 1815) and Allyn G. Johnson contributed a lipoma in a finescale menhaden (RTLA 1664) and a two-pound fibrolipoma in a drum (RTLA 1662). Lipomas in a porgy (RTLA 1718) and a mojarra (RTLA 1730) were received from Walter Kandrashoff in a large batch of specimens (RTLA 1714-1722, 1724-1730) from North Biscayne Bay, Florida. The preponderance of lesions in the other fish in the batch were various gross manifestations of acute and chronic inflammatory reactions, often involving ulceration and/or parasites. Mr. Kandrashoff has seen an increasing prevalence of these conditions during the decade and feels that this increased susceptibility to parasites is related to increased amounts of organic chemicals going into the bay.

Hematopoietic neoplasms included malignant lymphomas in a rainbow trout from Charlie E. Smith (RTLA 1814) and in a blackfin pearlfish from George C. Blasiola, Jr. (RTLA 1646). Individual cases included a cavernous hemangioma in a rainbow trout from Barry J. Stevenson (RTLA 1650), a mesothelioma in a jewfish from Robert R. Shields (RTLA 1617), an epidermal papilloma in a climbing perch from Joydeb Pal (RTLA 1738), a carcinoma possibly of ultimobranchial gland origin in a cutthroat trout from Charlie E. Smith (RTLA 1837), a thyroid adenoma in a Kinubari from Prince Masahito Hitachi (RTLA 1712), and an ichthyematoma (fish scale tumor) in a goldfish from Nelson Herwig (RTLA 1822). Over the years, we have re-

ceived at least three ichthyematomas or skin tumors in which pegs of epidermis are interacting with dermal connective tissue, similar to the process of tooth formation, resulting in variably differentiated levels of scale production.

Among amphibians, 20 Mexican axolotl specimens contributed by Louis E. DeLanney (RTLA 1674-1693) had one adenoma, one intradermal melanophoroma, and 18 very interesting cutaneous lesions primarily composed of mast cells. The fine structure is currently being studied in an effort to differentiate between the possibility these are mast cell tumors versus nodules of mastocytosis. A transplanted melanophoroma in a tiger salamander from Francis L. Rose (RTLA 1740) appeared to be viable. Two hematopoietic neoplasms were accessioned from South African clawed frogs. One, contributed by Gerry E. Cosgrove (RTLA 1665), was a lymphosarcoma. The cell type of the other case, contributed by R. Verhoeff-de Fremery (RTLA 1769), could not be determined.

Among reptiles were five snake neoplasms: a malignant lymphoma in an Indian rock python from Phillip T. Robinson (RTLA 1600), a lymphosarcoma in a California king snake from Elliott Jacobson (RTLA 1770), an oral squamous versus epidermoid sarcoma in a California king snake from James R. Hill (RTLA 1835), a lipoma in a boa constrictor from Fredric L. Frye (RTLA 1823), and an angiosarcoma in a timber rattlesnake from Elliott Jacobson and S. W. Nielsen (RTLA 1819), but which preliminary electron microscopy suggests may actually be a carcinoma. Material from two green sea turtles with cutaneous fibropapillomas was received from George H. Balazs (RTLA 1767, 1774). A wart-like epidermal papilloma containing intranuclear inclusions in a green lizard was contributed by E. Elkan (RTLA 1821).

REFERENCE LIBRARY

Approximately 360 papers were added to the comprehensive library on neoplasms in lower animals bringing the total to 3,510. Except for recent acquisitions and articles that need to be translated, all papers have been abstracted by selected key words and computerized.

PAPERS SINCE 1976

Harshbarger, J.C. The Role of the Registry of Tumors in Lower Animals in the Study of Environmental Carcinogenesis in Aquatic Animals. *Ann. N.Y. Acad. Sci.*, 298: 280-289. 1977.

Rose, F.L. and Harshbarger, J.C. Neoplastic and Possibly Related Skin Lesions in Neotenic Tiger Salamanders, *Ambystoma tigrinum*, from a Sewage Lagoon. *Science*, 196: 315-317. 1977.

Harshbarger, J.C., Chang, S.C., and Otto, S.V. Chlamydiae (with Phages), Mycoplasmas, and Rickettsiae in Chesapeake Bay Bivalves. *Science*, 196: 666-668. 1977.

Anderson, R.S., Jordan, L.A., and Harshbarger, J.C. Tunic Abnormalities of the Urochordate Halocynthia pyriformis (Rathke). J. Invertebr. Pathol., 30: 160-168. 1977.

Harshbarger, J.C. "Spontaneous Neoplasms in Amphibians" and "Spontaneous Neoplasms in Reptiles," two Sections of Chapter 1: "Tumors," In: Pathology of Laboratory Animals, Vol. 2, K. Benirschke, F.M. Garner, T.C. Jones, and C. Kozma (ed.), (Springer-Verlag, New York; in press).

Harshbarger, J.C., Otto, S.V., and Chang, S.C. Proliferative Disorders in Crassostrea virginica and Mya arenaria from the Chesapeake Bay and Intranuclear Virus-Like Inclusions in Mya arenaria with Germinomas from a Maine Oil Spill Site. Haliotis (in press).

Otto, S.V., Harshbarger, J.C., and Chang, S.C. Status of Selected Unicellular Eucaryote Pathogens, and Prevalence and Histopathology of Inclusions Containing Obligate Procaryote Parasites, in Commercial Bivalve Mollusks from Maryland Estuaries. Haliotis (in press).

SELECTED OTHER ACTIVITIES IN 1977

1. Attended the Fish Health Workshop on 26 and 27 May 1977 at Easton, Maryland.
2. Attended the Xth Annual Meeting of the Society for Invertebrate Pathology on 22-26 August 1977 in East Lansing, Michigan.
3. Presented two papers: (1) "Status of Selected Unicellular Eucaryote Pathogens, and Prevalence and Histopathology of Inclusions Containing Obligate Procaryote Parasites, in Commercial Bivalve Mollusks from Maryland Estuaries" (Otto, S.V., Harshbarger, J.C., and Chang, S.C.) and (2) "Proliferative Disorders in Crassostrea virginica and Mya arenaria from the Chesapeake Bay and Intranuclear Virus-Like Inclusions in Mya arenaria with Germinomas from a Maine Oil Spill Site" (Harshbarger, J.C., Otto, S.V., and Chang, S.C.) at the Colloque International de Pathologie et Parasitologie des Mollusques on 9-12 September 1977 in Perpignan, France.
4. Visited and consulted with personnel of the Fish Diseases Laboratory, Weymouth, England, on 14 and 15 September 1977, regarding neoplasia in fin fish and shellfish.
5. Presented the paper, "Feral Populations in Monitoring Environmental Pollution. Part II - Aquatic," at the 105th Annual Meeting of the American Public Health Association, on 30 October - 3 November 1977, in Washington, D.C.
6. Participated in cooperative investigations of the ultrastructural pathology of: (a) neoplasms in bivalves; (b) procaryotic organisms in bivalves; and, (c) neoplasms in axolotls. {(a) and (b) were supported in part by the U.S. Food and Drug Administration.}

7. Attended Noon microscope slide pathology seminars at the U.S. National Cancer Institute.
8. Attended lecture series on ultrastructural pathology at the U.S. National Institutes of Health.
9. Served as a member of the planning committee for a forthcoming (2-4 October 1978) meeting on comparative pathology of zoo animals.
10. Served as a member of the Interagency Collaborative Group on Environmental Carcinogenesis (chaired by Herman F. Kraybill of the U.S. National Cancer Institute).
11. Served as a member of the Committee on Animal Models and Genetic Stocks of the Institute of Laboratory Animal Resources, National Research Council, National Academy of Sciences.
12. Served as a member of the Permanent Program Committee of the Society for Invertebrate Pathology.
13. Served as Vice President of the Washington, D.C. Chapter of Sigma Xi, The Scientific Research Society of North America.

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ACCESSIONS

RTLA 1599. American oyster, Crassostrea virginica

Material: Three microscope slides

Habitat: Apalachicola Bay, Florida

Diagnosis: Hematopoietic neoplasm (gills heavily invaded); infected with Dermocystidium marinum (particularly foci of epithelium); a ciliate is present in the gills; Nematopsis spores in the parenchymal tissue of body and mantle

Submitter: J. A. Couch

RTLA 1600. Indian rock python, Python molorus

Material: Two microscope slides; 2 black and white prints

Habitat: Collection of the San Diego Zoo, San Diego, California

Diagnosis: Malignant lymphoma

Submitter: P. T. Robinson

RTLA 1601. Two-color parrotfish, Bolbometopon bicolor

Material: Gross specimen with a growth in the opercular cavity

Habitat: Off Lapu Lapu City, Sabu, Philippines

Diagnosis: Multiple protozoan cysts

Submitter: G. C. Blasiola, Jr.

RTLA 1602. Spiny granite lizard, Sceloporus orcutti

Material: Gross specimen with large, highly raised, firm, amorphous lesion on right dorsal surface of neck; multiple, similar, but smaller lesions on neck, dorsal surface of right foreleg, and ventral surface of body

Habitat: Pet; purchased from a dealer in California

Diagnosis: Keratinizing epidermis in response to heavy fungus infection

Submitter: S. B. Hedges

RTLA 1603. Sockeye salmon, Oncorhynchus nerka

Material: Two microscope slides

Habitat: Mariculture pens in Departure Bay, Nanaimo, B. C., Canada

Diagnosis: Teratoid anomaly

Submitter: G. R. Bell

RTLA 1604. Dusky pigmy rattlesnake, Sistrurus milianus

Material: Two microscope slides; 1 paraffin block

Habitat: Jackson County, Florida

Diagnosis: Mycotic granuloma due to a septate branching fungus

Submitter: C. G. Crispens, Jr.

RTLA 1605. Weakfish, Cynoscion regalis

Material: Four pieces of tissue; 2 microscope slides

Habitat: York River, Virginia

Diagnosis: Ganglioneuroma

Submitter: D. E. Zwerner and C. L. Ruddell

- RTLA 1606. Boa constrictor
Material: Tissue: liver, pancreas, non-functioning testis and ovary; 2 microscope slides
Diagnosis: Hermaphrodite; sertoli cells prominent due to loss of spermatogenesis
Submitter: F. L. Frye
- RTLA 1607. Sea star, Asterias forbesi
Material: Three gross specimens: one with a small, firm, raised growth on an arm; the other two injected with viruses
Diagnosis: Specimen with growth: deformity of regeneration; two specimens injected with viruses: no apparent reaction
Submitter: F. B. Bang
- RTLA 1608-1614. Rock oyster, Crassostrea commercialis
Material: Seven growths cut into cubes; 7 paraffin blocks
Habitat: Greenwell Point, Shoalhaven River, Australia
Diagnosis: Epidermal papillomas of the mantle
Submitter: P. H. Wolf
- RTLA 1615. Rainbow trout, Salmo gairdneri
Material: One microscope slide; 1, 35 mm color transparency
Diagnosis: Nephroblastoma
Submitter: H. Wolf
- RTLA 1616. Mexican axolotl, Ambystoma mexicanum
Material: Two nodules
Diagnosis: Granulomas of probable helminthologic etiology
Submitter: R. Verhoeff-de Fremery
- RTLA 1617. Jewfish, Epinephelus itajara
Material: Two microscope slides; 6, 35 mm color transparencies; 4 electron photomicrographs
Diagnosis: Mesotheliomas; rodlet cells
Submitter: R. R. Shields
- RTLA 1618. Koi carp, Cyprinus carpio
Material: Three small lesions surgically removed from the body wall
Habitat: Outdoor pond; Japanese Tea Gardens, San Jose, California
Diagnosis: Neurilemmal sarcomas
Submitter: G. C. Blasiola, Jr.
- RTLA 1619. Red-spotted newt, Notophthalmus viridescens
Material: Spleen with a large growth and several nodules
Diagnosis: Infectious granulomas of acid-fast bacterial etiology
Submitter: N. Cohen
- RTLA 1620-1640. Soft-shell clam, Mya arenaria
Material: Twenty-one paraffin blocks; 1 pathology report
Habitat: Various sites in the Chesapeake Bay
Diagnosis: Cytoplasmic inclusions
Submitter: S. V. Otto

- RTLA 1641. Indigo snake, Drymarchion corais
Material: Two microscope slides
Habitat: Captive animal; Wolverhampton, England
Diagnosis: Multiple mycotic granulomas
Submitter: J. E. Cooper
- RTLA 1642. Rainbow trout, Salmo gairdneri
Material: Two pieces of tissue from a lump
Habitat: Lake Eucumbene, New South Wales, Australia
Diagnosis: Neurilemmoma
Submitter: P. H. Wolf
- RTLA 1643. Goldfish, Carassius auratus
Material: Two gross specimens; 1 microscope slide; 3, 35 mm color transparencies
Habitat: Backyard pond; Sacramento, California
Diagnosis: Neurilemmomas
Submitter: H. Wolf
- RTLA 1644. Roach, Rutilus rutilus
Material: Two microscope slides
Habitat: River in east of England
Diagnosis: Early bile duct adenofibrosis, probably due to a hepatotoxin
Submitter: D. Bucke
- RTLA 1645. Orgyia pseudotsugata
Material: Three pieces of a larva: 1 piece with a protrusion between the first and second pair of prolegs
Diagnosis: Teratosis or developmental anomaly, probably congenital or resulted from an injury in an early instar
Submitter: M. E. Martignoni and P. J. Iwai
- RTLA 1646. Black fin pearlfish, Cynolebias nigripinnis
Material: Gross specimen with a large growth involving the left pectoral fin
Habitat: Tank raised
Diagnosis: Malignant lymphoma
Submitter: G. C. Blasiola, Jr.
- RTLA 1647. Catfish, Corydoras sp.
Material: Gross specimen with black lesion on head
Habitat: Pet in a home aquarium
Diagnosis: Malignant melanophoroma
Submitter: J. Herrin
- RTLA 1648. Trevally (jack), Caranx georgianus
Material: Two paraffin blocks
Habitat: Bay of Plenty, New Zealand
Diagnosis: Collagen reaction similar to acid injury to skin
Submitter: B. J. Stevenson

- RTLA 1649. Trevally (jack), Caranx lutescens
Material: Two paraffin blocks
Habitat: Kaipara Harbour, New Zealand
Diagnosis: Melanocytic neurilemmoma (blue nevus)
Submitter: B. J. Stevenson
- RTLA 1650. Rainbow trout, Salmo gairdneri
Material: Two paraffin blocks from soft fluctuant lesion on dorsum
Diagnosis: Cavernous hemangioma
Submitter: B. J. Stevenson
- RTLA 1651. Brown trout, Salmo trutta
Material: Three microscope slides of white visceral growths
Habitat: Four miles from mouth of Grey River, New Zealand
Diagnosis: Leiomyoma
Submitter: B. J. Stevenson
- RTLA 1652. Channel catfish, Ictalurus punctatus
Material: Two microscope slides of lesion in spleen
Diagnosis: Infectious granuloma
Submitter: A. L. Scott
- RTLA 1653-1657. Fathead minnow, Pimephales promelas
Material: Gross specimen in 2 pieces: portion of head and remainder of animal (RTLA 1653); 2 gross specimens (RTLA 1654 and 1655); 1 microscope slide and 1 paraffin block (RTLA 1656); 9 microscope slides (RTLA 1657)
Diagnosis: Induced lipoma
Submitter: C. E. Smith
- RTLA 1658. Fish
Material: A portion of body wall with eroded musculature
Diagnosis: Neural fibrosarcoma
Submitter: Unknown
- RTLA 1659. Spot, Leiostomus xanthurus
Material: Gross specimen with 2 growths in abdominal region
Habitat: Bolivar Peninsula in Galveston Bay, Texas
Diagnosis: Microsporidan infection
Submitter: R. R. Stickney
- RTLA 1660. Atlantic salmon, Salmo salar
Material: Three gross specimens; 2 microscope slides; 9 black and white photographs; 18 color transparencies
Habitat: A sea loch on West coast of Scotland
Diagnosis: Leiomyosarcoma of the swim bladder
Submitter: I. McKnight and K. G. R. Elson
Reprint: McKnight, Ian J. Sarcoma of the Swim Bladder of Atlantic Salmon (Salmo salar L.). Aquaculture, 13: 55-60. 1978. Duncan, I. B. Evidence for an Oncovirus in Swimbladder Fibrosarcoma of Atlantic Salmon Salmo salar L. J. Fish Dis., 1: 127-131. 1978.

RTLA 1661. Eel

Material: Two gross specimens: 1 with multiple head lesions; 1 control
Diagnosis: Bacterial granulomas; organism resembles Streptococcus sp.
Submitter: C. M. Bailey

RTLA 1662. Black drum, Pogonias cromis

Material: Two pound growth from visceral cavity
Habitat: Gulf of Mexico off Port Aransas, Texas
Diagnosis: Fibrolipoma
Submitter: A. G. Johnson

RTLA 1663. Brown shrimp, Penaeus aztecus

Material: Two gross shrimp; 6 microscope slides; manuscript
Habitat: Mississippi Sound, near Ocean Springs Small Boat Harbor
Diagnosis: Hamartoma; involved musculature within the sixth abdominal segment
Submitter: R. M. Overstreet
Reprint: Overstreet, Robin M. and Thomas Van Devender. Implication of an Environmentally-Induced Hamartoma in Commercial Shrimps. J. Invertebr. Pathol., 31: 234-238. 1978.

RTLA 1664. Finescale menhaden, Bevoortia gunteri

Material: Gross specimen with growth on back between dorsal and caudal fins
Habitat: National Marine Fisheries Service dock, Port Aransas, Texas
Diagnosis: Lipoma
Submitter: A. G. Johnson

RTLA 1665. South African clawed frog, Xenopus laevis

Material: Two microscope slides; enlarged spleen and spotted liver
Habitat: Laboratory
Diagnosis: Lymphosarcoma, multiple sites; hyperplastic, sclerotic capsule surrounds spleen
Submitter: G. E. Cosgrove

RTLA 1666. South African clawed frog, Xenopus laevis

Material: One paraffin block
Habitat: Laboratory
Diagnosis: Hyperplasia (?) -- pancreatic islet
Submitter: G. E. Cosgrove

RTLA 1667. South African clawed frog, Xenopus laevis

Material: Two microscope slides
Habitat: Laboratory
Diagnosis: Granulomas near eye and near heart; strigeoid metacercaria in blood clot; nematode (Capillaria sp.) infection in skin
Submitter: G. E. Cosgrove

RTLA 1668. South African clawed frog, Xenopus laevis

RTLA 1668 (contd.)

Material: One paraffin block from emaciated male
Habitat: Laboratory
Diagnosis: Bone marrow dysplasia associated with unidentified particles in peripheral blood; nematode infection in skin
Submitter: G. E. Cosgrove

RTLA 1669. South African clawed frog, Xenopus laevis

Material: Two microscope slides
Habitat: Laboratory
Diagnosis: Ovarian atrophy; nematode infection (Capillaria sp.) in skin
Submitter: G. E. Cosgrove

RTLA 1670. South African clawed frog, Xenopus laevis

Material: Two microscope slides
Habitat: Laboratory
Diagnosis: Ovarian degeneration; severe congestion
Submitter: G. E. Cosgrove

RTLA 1671. South African clawed frog, Xenopus laevis

Material: Two microscope slides
Habitat: Laboratory
Diagnosis: Infected skin wound and body wall associated with massive "monocytosis"; partial ovarian atrophy with mold sclerosis; nematode infection (Capillaria sp.) in skin
Submitter: G. E. Cosgrove

RTLA 1672. White cloud, Tanichthys albonubes

Material: Three microscope slides
Habitat: Aquarium
Diagnosis: Subepidermal focus of cells -- probably unicellular parasites of some undeterminate type
Submitter: G. E. Cosgrove

RTLA 1673. Red-spotted newt, Notophthalmus viridescens

Material: Eleven fragments from a dissected newt with enlarged fluid filled abdomen
Habitat: Near Caryville, Tennessee (Campbell County)
Diagnosis: Severe cystic glomerular degeneration; intestinal tapeworms
Submitter: G. E. Cosgrove

RTLA 1674-1693. Mexican axolotl, Ambystoma mexicanum

Material: Tissue; color transparencies
Habitat: Laboratory
Diagnosis: Adenoma (RTLA 1674); intradermal melanophoroma (RTLA 1691); mast cell tumors versus cutaneous nodules of mastocytosis (RTLA 1675-1690, 1692, 1693)
Submitter: L. E. DeLanney

RTLA 1694-1703. Soft-shell clam, Mya arenaria

RTLA 1694-1703 (contd.)

Material: Eleven paraffin blocks from 3 specimens (RTLA 1694); 28 paraffin blocks from 12 specimens (RTLA 1695); 39 paraffin blocks from 12 specimens (RTLA 1696); 6 paraffin blocks from 1 specimen (RTLA 1697); 4 paraffin blocks from 2 specimens (RTLA 1698); 5 paraffin blocks from 3 specimens (RTLA 1699); 6 paraffin blocks from 3 specimens (RTLA 1700); 31 paraffin blocks from 12 specimens (RTLA 1701); 20 paraffin blocks from 10 specimens (RTLA 1702); 20 paraffin blocks from 11 specimens (RTLA 1703); map of collecting sites

Habitat: Ten collecting sites in Long Cove, Searsport, Maine, representing various concentrations of petroleum from spills

Diagnosis: Gonadal neoplasms (RTLA 1694-1697, 1699-1703); hematopoietic neoplasm (RTLA 1698)

Submitter: P. P. Yevich

RTLA 1704. Brazilian snake, Spilotes pullatus

Material: Piece of liver tissue; 4 microscope slides; 2 paraffin blocks

Diagnosis: Haemogregarine infection

Submitter: E. Elkan

RTLA 1705. Oscar, Astronotus ocellatus

Material: Two paraffin blocks

Diagnosis: Ichthyosporidium hoferi infection

Submitter: E. Elkan

RTLA 1706. King snake, Lampropeltis sp.

Material: The remains of a multilocular cyst with clusters of smaller type cysts attached to its outside surface

Diagnosis: Pseudocystic calcinosis of probable bacterial etiology (similar to tumoral calcinosis described by Slavin et al. 1973. Brit. Med. J., p. 147-149)

Submitter: E. Elkan

RTLA 1707. Carp, Cyprinus carpio

Material: Thirteen microscope slides; 3, 35 mm color transparencies; 7 black and white photographs; 5 diagrams; 3 color photomicrographs; 3 electron photomicrographs

Habitat: Niigata Prefecture, Japan

Diagnosis: Well-differentiated olfactory neuroepithelioma

Submitter: Prince Masahito Hitachi

RTLA 1708. Gulf croaker, Micropogon megalops

Material: Two gross specimens: 1 pathologic (widely-scattered, amorphous, flush black lesions on all body surfaces and fins) -- 1 control; specimen form and catalog record form

Habitat: Golfo de California: passageway between Isla Montague and coast of Baja California Norte, Mexico

RTLA 1708 (contd.)

Diagnosis: Probably an unusual type of host response to a parasite (trematode ?); nematodes were associated with the viscera
Submitter: A. J. Mearns

RTLA 1709. Gulf croaker, Micropogon megalops

Material: Gross specimen with widely-scattered lesions on the body and fins and with enlarged lips; specimen form and catalog record form
Habitat: Golfo de California: Puerto Penasco; Station Beach, Mexico
Diagnosis: Probably an unusual type of host response to a parasite (trematode ?)
Submitter: A. J. Mearns

RTLA 1710. Brown shrimp, Penaeus aztecus

Material: Six microscope slides
Habitat: Reared at the University of Arizona-University of Sonora shrimp culture research station at Puerto Penasco, Sonora, Mexico
Diagnosis: Papillary hyperplasia of the epidermis
Submitter: D. V. Lightner

RTLA 1711. Rose bitterling, Rhodeus ocellatus

Material: Five microscope slides; 4 black and white photographs
Diagnosis: Nephroblastoma
Submitter: Prince Masahito Hitachi

RTLA 1712. Kinubari, Pterogobius elapoides

Material: One microscope slide; 1 black and white photograph
Habitat: Enoshima Aquarium, Japan
Diagnosis: Adenoma
Submitter: Prince Masahito Hitachi

RTLA 1713. Coho salmon, Oncorhynchus kisutch

Material: Six color transparencies; 1 electron photomicrograph
Habitat: Pacific Ocean off Newport, Oregon
Diagnosis: Response to a parasitic (microsporidan ?; haplosporidan ?) infestation of kidney tubules
Submitter: R. Stroud

RTLA 1714. Lane snapper, Lutjanus synagris

Material: Gross specimen with tail erosion
Habitat: North Biscayne Bay, Miami, Florida
Diagnosis: Ulceration and fibrosis
Submitter: W. Kandrashoff

RTLA 1715. Sea catfish, Arius felis

Material: Gross specimen with amorphous, flush skin lesions variously located on trunk
Habitat: North Biscayne Bay, Miami, Florida

RTLA 1715 (contd.)

Diagnosis: Loss of epidermis, bacterial infection and inflammation of dermis, subcutaneous fibrosis, atrophy of underlying skeletal muscle with fibrous replacement

Submitter: W. Kandrashoff

RTLA 1716. Pinfish, Lagodon rhomboides

Material: Gross specimen with scale disorientation

Habitat: North Biscayne Bay, Miami, Florida

Diagnosis: Slides not diagnostic

Submitter: W. Kandrashoff

RTLA 1717. Gray (mangrove) snapper, Lutjanus griseus

Material: Gross specimen with curvature of distal portion of lower spines of the caudal fin

Habitat: North Biscayne Bay, Miami, Florida

Diagnosis: Intermittent disappearance of supporting osseous sheath concomitant with connective tissue swelling

Submitter: W. Kandrashoff

RTLA 1718. Porgy

Material: A piece of body wall with a round, gold, greasy lesion

Habitat: North Biscayne Bay, Miami, Florida

Diagnosis: Lipoma

Submitter: W. Kandrashoff

RTLA 1719. Mojarra

Material: Caudal fin with central portion missing

Habitat: North Biscayne Bay, Miami, Florida

Diagnosis: Some type of worm parasite in peduncle

Submitter: W. Kandrashoff

RTLA 1720. Pinfish, Lagodon rhomboides

Material: Gross specimen with missing fin rays on the dorsal fin and a missing left pelvic fin

Habitat: North Biscayne Bay, Miami, Florida

Diagnosis: Trematode-like worm parasite in muscle

Submitter: W. Kandrashoff

RTLA 1721. Pinfish, Lagodon rhomboides

Material: Gross specimen with scale disorientation

Diagnosis: Trematode-like worm parasite in dermis

Submitter: W. Kandrashoff

RTLA 1722. Porgy

Material: Disoriented eye

Habitat: North Biscayne Bay, Miami, Florida

Diagnosis: Periorbital fibrosis associated with parasite

Submitter: W. Kandrashoff

RTLA 1723. Guppy, Poecilia reticulata

Material: One microscope slide

RTLA 1723 (contd.)

Habitat: Aquarium
Diagnosis: Liver undergone some fibrosis and contains granulomas; specimen experimentally treated with estrogen
Submitter: S. Sherman

RTLA 1724. Weakfish, Cynoscion regalis

Material: Two livers, one with abundant black pigment in the mesentery
Habitat: Off North Carolina coast
Diagnosis: Infectious granulomas in both livers at least some of which are due to nematode-like worm parasites. Multiple granulomas in mesentery of the one with excessive black pigment
Submitter: W. Kandrashoff

RTLA 1725. Mojarra

Material: Disoriented eye
Habitat: North Biscayne Bay, Miami, Florida
Diagnosis: Nothing diagnostic in plane of section
Submitter: W. Kandrashoff

RTLA 1726. Spotted sea trout, Cynoscion nebulosus

Material: Disoriented eye; severely eroded tail; 1 color photograph
Habitat: North Biscayne Bay, Miami, Florida
Diagnosis: Caudal peduncle heavily infected with worm parasites and protozoan parasites. Unicellular organisms in periorbital region of eye
Submitter: W. Kandrashoff

RTLA 1727. Margate, Haemulon album

Material: Deformed tail
Habitat: North Biscayne Bay, Miami, Florida
Diagnosis: Granulomas in caudal peduncle
Submitter: W. Kandrashoff

RTLA 1728. Grunt, Haemulon sp.

Material: Fish head with twisted, misaligned lower jaw
Habitat: Near Soldiers Key in South Biscayne Bay, Florida
Diagnosis: Jaw contains worm granulomas
Submitter: W. Kandrashoff

RTLA 1729. Pinfish, Lagodon rhomboides

Material: A portion of body wall with scale disorientation and dorsal fin with one missing ray and one mislocated ray
Habitat: North Biscayne Bay, Miami, Florida
Diagnosis: Worm parasite in dermis
Submitter: W. Kandrashoff

RTLA 1730. Mojarra

Material: Posterior portion of fish with a firm, raised, oval

RTLA 1730 (contd.)

area on one side of the caudal peduncle
Habitat: North Biscayne Bay, Miami, Florida
Diagnosis: Lipoma
Submitter: W. Kandrashoff

RTLA 1731. Sea bream (porgy), Archosargus rhomboidalis

Material: Growth: sliced into 4 pieces; drawing showing location of growth on fish
Habitat: Biscayne Bay, Miami, Florida
Diagnosis: Exuberant fibrous response with associated inflammation to a parasitic infection
Submitter: E. P. Kraus

RTLA 1732. Platyfish swordtail backcross hybrid, Platypoecilus variatus x Xiphophorus helleri x X. helleri

Material: Two black and white photographs; 1 schematic drawing of lineage through hybridization
Habitat: Research Laboratory; Genetisches Institut, Giessen, Germany
Diagnosis: Rhabdomyosarcoma induced by N-methyl-N-nitroso-urea
Submitter: M. Schwab

RTLA 1733. Platyfish swordtail backcross hybrid, Platypoecilus variatus x Xiphophorus helleri x X. helleri

Material: Two black and white photographs; 1 schematic drawing of lineage through hybridization
Habitat: Research Laboratory, Genetisches Institut, Giessen, Germany
Diagnosis: Fibrosarcoma induced by N-methyl-N-nitroso-urea
Submitter: M. Schwab

RTLA 1734. Greenling, Hexagrammos otakii

Material: Piece of tissue (filet) covered with minute, white, dome-shaped lesions and minute, black flush lesions
Habitat: Kojima, Matsumae Town, Matsumae gun, Hokkaido, Japan
Diagnosis: Parasitic granulomas in response to a nematode
Submitter: K. Oishi

RTLA 1735 & 1736. American oyster, Crassostrea virginica

Material: One paraffin block each; 1 pathology report each
Habitat: Chesapeake Bay; Chester River, Piney Point
Diagnosis: Cytoplasmic inclusions
Submitter: S. V. Otto

RTLA 1737. Ribbed mussel, Brachidontes recurvus

Material: One paraffin block; pathology report
Habitat: Chesapeake Bay; Chester River, Piney Point
Diagnosis: Cytoplasmic inclusions
Submitter: S. V. Otto

RTLA 1738. Climbing perch, Anabas testudineus

RTLA 1738 (contd.)

Material: Six microscope slides; 2 photomicrographs
Diagnosis: Epidermal papilloma
Submitter: J. Pal

RTLA 1739. Siren lacertina

Material: One of two growths removed from the right side of the animal
Diagnosis: Granulomas due to a bacterium
Submitter: K. Martin

RTLA 1740. Tiger salamander, Ambystoma tigrinum

Material: Two microscope slides; 1 paraffin block
Diagnosis: Transplanted melanophoroma
Submitter: F. L. Rose

RTLA 1741. Mussel, Mytilus californianus

Material: Two paraffin blocks
Habitat: Bodega, California
Diagnosis: Cytoplasmic inclusions in digestive diverticula and in gut goblet cells
Submitter: P. P. Yevich and C. A. Barszcz

RTLA 1742. Mussel, Mytilus edulis

Material: Two paraffin blocks
Diagnosis: Cytoplasmic inclusions in both the plicate membrane and the gills
Submitter: P. P. Yevich and C. A. Barszcz

RTLA 1743. Mussel, Mytilus edulis

Material: One microscope slide; 1 paraffin block
Diagnosis: Cytoplasmic inclusions in gills and plicate membrane; trematode, Bucephalus, in connective tissue
Submitter: P. P. Yevich and C. A. Barszcz

RTLA 1744. Soft-shell clam, Mya arenaria

Material: One microscope slide
Diagnosis: Kidney hyperplasia associated with foci of necrotic hemocytes
Submitter: P. P. Yevich and C. A. Barszcz
Reprint: Barry, M. M., P. P. Yevich, and N. H. Thayer. Atypical Hyperplasia in the Soft-Shell Clam Mya arenaria. J. Invertebr. Pathol., 17: 17-27. 1971.

RTLA 1745. Soft-shell clam, Mya arenaria

Material: Two microscope slides
Diagnosis: Kidney hyperplasia associated with foci of necrotic hemocytes
Submitter: P. P. Yevich and C. A. Barszcz
Reprint: (See RTLA 1744)

RTLA 1746. Mussel, Mytilus edulis

Material: One microscope slide

RTLA 1746 (contd.)

Diagnosis: Cytoplasmic inclusions in gills and inflammation
Submitter: P. P. Yevich and C. A. Barszcz

RTLA 1747. Carp, Cyprinus carpio

Material: Gross specimen with a large protruding growth on the left dorsal side; 1 black and white photograph; 1, 35 mm color transparency
Habitat: Watts Bar Reservoir, Tennessee
Diagnosis: Neurilemmoma
Submitter: D. Tomljanovich

RTLA 1748. American oyster, Crassostrea virginica

Material: Nine microscope slides; collecting data
Habitat: Chesapeake Bay; Punch Island, Tar Bay
Diagnosis: Germinoma
Submitter: S. V. Otto

RTLA 1749. American oyster, Crassostrea virginica

Material: Twelve microscope slides; collecting data
Habitat: Chesapeake Bay; Manokin River, Georges Bay
Diagnosis: Hematopoietic neoplasm
Submitter: S. V. Otto

RTLA 1750. American oyster, Crassostrea virginica

Material: Eleven microscope slides
Diagnosis: Hematopoietic neoplasm
Submitter: S. V. Otto

RTLA 1751. American oyster, Crassostrea virginica

Material: Nine microscope slides
Diagnosis: Cryptic adenomatous hyperplasia of mantle epithelium; gill hyperplasia
Submitter: S. V. Otto

RTLA 1752. American oyster, Crassostrea virginica

Material: Ten microscope slides; collecting data
Habitat: Chesapeake Bay; Cedar Point Hollow
Diagnosis: Hematopoietic neoplasm
Submitter: S. V. Otto

RTLA 1753. American oyster, Crassostrea virginica

Material: Eight microscope slides; collecting data
Habitat: Chesapeake Bay; Piney Island Swash Tray Area, Manokin River, Broad Creek
Diagnosis: Hematopoietic neoplasm
Submitter: S. V. Otto

RTLA 1754. American oyster, Crassostrea virginica

Material: Nine microscope slides; collecting data
Habitat: Chincoteague Bay, Franklin City, Chesapeake Bay, Manokin
Spat
Diagnosis: Hematopoietic neoplasm

RTLA 1754 (contd.)

Submitter: S. V. Otto

RTLA 1755. American oyster, Crassostrea virginica

Material: Ten microscope slides; collecting data

Habitat: Chesapeake Bay; Big Annemessex River

Diagnosis: Cryptic adenomatous hyperplasia of mantle epithelium

Submitter: S. V. Otto

RTLA 1756. American oyster, Crassostrea virginica

Material: One microscope slide; collecting data

Habitat: Chesapeake Bay; Manokin River, Broad Creek Spat

Diagnosis: Cryptic adenomatous hyperplasia of mantle epithelium; gill hyperplasia

Submitter: S. V. Otto

RTLA 1757. American oyster, Crassostrea virginica

Material: Ten microscope slides; collecting data

Habitat: Chesapeake Bay; Choptank River, Cook Point

Diagnosis: Hematopoietic neoplasm

Submitter: S. V. Otto

RTLA 1758. American oyster, Crassostrea virginica

Material: One microscope slide; collecting data

Diagnosis: Hematopoietic neoplasm

Submitter: S. V. Otto

RTLA 1759. American oyster, Crassostrea virginica

Material: Ten microscope slides; collecting data

Habitat: Chesapeake Bay; Poplar Island

Diagnosis: Hematopoietic neoplasm

Submitter: S. V. Otto

RTLA 1760. American oyster, Crassostrea virginica

Material: One microscope slide; collecting data

Habitat: Chesapeake Bay; Broad Creek, Middleground

Diagnosis: Hematopoietic neoplasm

Submitter: S. V. Otto

RTLA 1761. American oyster, Crassostrea virginica

Material: Five microscope slides; collecting data

Habitat: Manokin River

Diagnosis: Hematopoietic neoplasm

Submitter: S. V. Otto

RTLA 1762. American oyster, Crassostrea virginica

Material: One microscope slide; collecting data

Habitat: Chesapeake Bay; Tangier Sound, Lambstone

Diagnosis: Cryptic adenomatous hyperplasia of mantle epithelium

Submitter: S. V. Otto

RTLA 1763. American oyster, Crassostrea virginica

RTLA 1763 (contd.)

Material: Nine microscope slides; collecting data
Habitat: Chesapeake Bay; Old Field, Chester River
Diagnosis: Undifferentiated sarcoma
Submitter: S. V. Otto

RTLA 1764. American oyster, Crassostrea virginica

Material: Five microscope slides; collecting data
Habitat: Chesapeake Bay; Chester River, Piney Point
Diagnosis: Undifferentiated sarcoma
Submitter: S. V. Otto

RTLA 1765. American oyster, Crassostrea virginica

Material: One microscope slide; collecting data
Habitat: Chesapeake Bay; Broad Creek, Middleground
Diagnosis: Hematopoietic neoplasm
Submitter: S. V. Otto

RTLA 1766. Hard clam, Mercenaria mercenaria

Material: One microscope slide
Diagnosis: Nuclear inclusions in gonad
Submitter: S. V. Otto

RTLA 1767. Green turtle, Chelonia mydas

Material: Six pieces of tissue consisting of rugose growths attached to the skin of the lower jaw, right limb, and surrounding both eyes; 4, 35 mm color transparencies
Habitat: Kailua Beach, Island of Oahu, Hawaii
Diagnosis: Fibropapillomas
Submitter: G. H. Balazs

RTLA 1768. Mexican axolotl, Ambystoma mexicanum

Material: Three pieces of tissue: 1 piece of liver with part of a growth and 2 pieces of skin and muscle with the remaining portion of the growth
Diagnosis: Not diagnostic
Submitter: R. Verhoeff-de Fremery

RTLA 1769. South African clawed frog, Xenopus laevis

Material: Spherical growth with irregular surface crisscrossed by blood vessels; 2 color transparencies
Diagnosis: Hematopoietic neoplasm -- cell type undetermined
Submitter: R. Verhoeff-de Fremery

RTLA 1770. California king snake, Lampropeltis getulus

Material: Sixteen microscope slides; 10 electron photomicrographs; data sheet
Habitat: Hatched and raised at The American Museum of Natural History, New York
Diagnosis: Lymphosarcoma
Submitter: E. Jacobson

RTLA 1771. Goldfish, Carassius auratus

Material: Gross specimen with a flat, fungating, amorphous lesion straddling the back
Habitat: Pet
Diagnosis: Neurilemmoma -- poorly-differentiated
Submitter: R. Marino

RTLA 1772. Gemfish (hake), Rexea solandri

Material: Hard lesion from left side; 5 microscope slides
Habitat: Between Sydney and Wollongong, New South Wales, Australia
Diagnosis: Scar tissue containing metaplastic bone -- probably related to an injury
Submitter: P. H. Wolf

RTLA 1773. Atlantic salmon, Salmo salar

Material: Gross specimen with a firm, bean-shaped growth attached to the belly, between the pectoral and pelvic fins. The growth has a pectoral fin on the right, a less developed pectoral fin on the left, and a pelvic fin.
Diagnosis: Teratoid anomaly manifested by incomplete twinning
Submitter: J. G. Hnath

RTLA 1774. Green turtle, Chelonia mydas

Material: Total of eight growths: extending out of right posterior lung; associated with right shoulder area; associated with ventral area of esophagus and trachea; associated with right lung; associated with lower intestine; 2 growths externally, one on each side of neck/head; growth externally on right side of neck; 1 print of live animal
Habitat: Off of Waikiki Beach, Island of Oahu, Hawaii
Diagnosis: Fibropapillomas
Submitter: G. H. Balazs

RTLA 1775. Koi carp, Cyprinus carpio

Material: Four microscope slides; autopsy report
Habitat: Captive specimen
Diagnosis: Nephroblastoma
Submitter: G. C. Blasiola, Jr.

RTLA 1776. Porcupinefish, Diodon hystrix

Material: Gross specimen with a cluster of amorphous, cyst-like, granular growths attached to the spines on the right side of the animal
Habitat: Naos Island Marine Lab, Balboa, Canal Zone (Pacific)
Diagnosis: Lymphocystis
Submitter: J. Cubit

RTLA 1777. Boa constrictor

Material: Three gross juvenile specimens
Habitat: Captive specimens

RTLA 1777 (contd.)

Diagnosis: Acute necrotizing enteritis
Submitter: I. Gorman

RTLA 1778. White sucker, Catostomus commersoni

Material: Two pieces of a lesion adhering to gut and liver
Habitat: Bozen Kill (part of Hudson River drainage, New York)
Diagnosis: Pancreatitis
Submitter: E. G. Hayunga

RTLA 1779. European flat oyster, Ostrea edulis

Material: Six microscope slides
Habitat: Ribadeo, Galicia, Spain; animals originally imported from Italian Adriatic
Diagnosis: Hematopoietic neoplasm
Submitter: D. J. Alderman
Reprint: Alderman, D. J., P. van Banning, and A. Perez-Colomer. Two European Oyster (Ostrea edulis) Mortalities Associated with an Abnormal Haemocytic Condition. Aquaculture, 10: 335-340. 1977.

RTLA 1780. European flat oyster, Ostrea edulis

Material: Four microscope slides
Habitat: Carantec, Finisterre, France
Diagnosis: Aber disease; parasitized by the haplosporidan, Marteilia refringens
Submitter: D. J. Alderman
Reprint: Alderman, David. Foreign Diseases Hazard British Shellfish. New Scientist, pp. 122-124, 8 July 1974.

RTLA 1781. European flat oyster, Ostrea edulis

Material: One microscope slide
Habitat: Menai Straits, North Wales
Diagnosis: Systemic herpes virus infection
Submitter: D. J. Alderman

RTLA 1782. Lobster, Homarus vulgaris

Material: One microscope slide
Habitat: Maintained in experimental tanks at Ministry of Agriculture, Fisheries and Food, Conway, North Wales
Diagnosis: Fungi (Ramularia sp.) in gut chitin
Submitter: D. J. Alderman

RTLA 1783. Coho salmon, Oncorhynchus kisutch

Material: One microscope slide
Diagnosis: Ependymoblastoma
Submitter: G. E. Hoskins

RTLA 1784. Congo tetra, Phenacogammus interruptus

Material: Two microscope slides
Habitat: Metro Toronto Zoo, Toronto, Canada
Diagnosis: Well-differentiated epidermal carcinoma

RTLA 1784 (contd.)

Submitter: B. Hicks

RTLA 1785. Chinook salmon, Oncorhynchus tshawytscha

Material: Three microscope slides

Habitat: Rakaia River, New Zealand

Diagnosis: Undifferentiated spindle cell sarcoma; possibly an embryonal rhabdomyoma

Submitter: B. J. Stevenson

RTLA 1786. Rainbow trout, Salmo gairdneri

Material: One microscope slide

Habitat: Coleridge, New Zealand

Diagnosis: Neurilemmoma

Submitter: B. J. Stevenson

RTLA 1787. Clam, Micromya (?)

Material: One clam

Habitat: Ten Mile Creek, Knox County, Tennessee

Diagnosis: Pending

Submitter: G. E. Cosgrove

RTLA 1788. Floater clam, Anodonta corpulenta

Material: Twenty-eight clams

Habitat: Melton Hill Lake, Anderson County, Tennessee

Diagnosis: Pending

Submitter: G. E. Cosgrove

RTLA 1789. Heel-splitter clam, Protoptera alata

Material: Eighteen clams

Habitat: Melton Hill Lake, Anderson County, Tennessee

Diagnosis: Pending

Submitter: G. E. Cosgrove

RTLA 1790. Floater clam (?), Anodonta corpulenta (?)

Material: Two clams

Habitat: White Oak Lake, Roane County, Tennessee

Diagnosis: Pending

Submitter: G. E. Cosgrove

RTLA 1791. Floater clam (?), Anodonta corpulenta (?)

Material: One clam

Habitat: White Oak Lake, Roane County, Tennessee

Diagnosis: Pending

Submitter: G. E. Cosgrove

RTLA 1792. Floater clam, Anodonta corpulenta

Material: Ten clams

Habitat: White Oak Lake, Roane County, Tennessee

Diagnosis: Pending

Submitter: G. E. Cosgrove

- RTLA 1793. Heel-splitter clam, Protoptera alata
Material: Three clams
Habitat: Melton Hill Lake, Anderson County, Tennessee
Diagnosis: Pending
Submitter: G. E. Cosgrove
- RTLA 1794. Rock oyster, Crassostrea commercialis
Material: Three microscope slides
Habitat: Myora Flat, Moreton Bay, Queensland, Australia
Diagnosis: Hematopoietic neoplasm; Tylocephalum sp. cysts present; Ancistrocoma sp. in wall of digestive diverticula
Submitter: P. H. Wolf
- RTLA 1795. Rock oyster, Crassostrea commercialis
Material: Three microscope slides
Habitat: Greenwell Point near Nowra, New South Wales, Australia
Diagnosis: Mantle papilloma
Submitter: P. H. Wolf
- RTLA 1796. Pearl oyster, Pinctada maxima
Material: Three microscope slides
Habitat: Kuri Bay, North Western Australia (between Wyndham and Derby) from a pearl farm
Diagnosis: Unidentified protistan parasite
Submitter: P. H. Wolf
Reprint: Wolf, Peter H. and Victor Sprague. An Unidentified Protistan Parasite of the Pearl Oyster, Pinctada maxima, in Tropical Australia. J. Invertebr. Pathol., 31: 262-263. 1978.
- RTLA 1797. Rock oyster, Crassostrea commercialis
Material: Four microscope slides
Habitat: Terranora Creek, Tweed River, New South Wales, Australia
Diagnosis: Early infection of Marteilia sydneyi
Submitter: P. H. Wolf
- RTLA 1798. Rock oyster, Crassostrea commercialis
Material: Six microscope slides
Habitat: Tweed River, New South Wales, Australia
Diagnosis: Heavy infection of Marteilia sydneyi
Submitter: P. H. Wolf
- RTLA 1799. Blacklip oyster, Crassostrea echinata
Material: Six microscope slides; 1 reprint
Habitat: Mangrove roots in Middle Arm, Darwin, Northern Territory, Australia
Diagnosis: Unidentified protistan parasite; also Tylocephalum sp. cysts
Submitter: P. H. Wolf
Reprint: Wolf, Peter H. An Unidentified Protistan Parasite in the Ova of the Blacklip Oyster, Crassostrea echinata, from Northern Australia. J. Invertebr. Pathol., 29: 244-246. 1977.

RTLA 1800. Threespine stickleback, Gasterosteus aculeatus

Material: Twelve microscope slides
Habitat: Ventura River System, Ventura County, California --
in the lower few miles of the river
Diagnosis: Pseudocystic microsporidan granuloma
Submitter: M. A. Bell

RTLA 1801. Threespine stickleback, Gasterosteus aculeatus

Material: Gross specimen with a pea-shaped growth on right ventro-lateral aspect
Habitat: Ventura River System, Ventura County, California --
lower few miles of the river
Diagnosis: Pseudocystic microsporidan granuloma
Submitter: M. A. Bell

RTLA 1802. Threespine stickleback, Gasterosteus aculeatus

Material: Gross specimen with pea-shaped growth on right dorso-lateral aspect
Habitat: Ventura River System, Ventura County, California --
lower few miles of the river
Diagnosis: Pseudocystic microsporidan granuloma
Submitter: M. A. Bell

RTLA 1803. Threespine stickleback, Gasterosteus aculeatus

Material: Gross specimen with pea-shaped growth on left mid-lateral aspect
Habitat: Ventura River System, Ventura County, California,
Ojai in San Antonio Creek
Diagnosis: Pseudocystic microsporidan granuloma
Submitter: M. A. Bell

RTLA 1804. Threespine stickleback, Gasterosteus aculeatus

Material: Gross specimen with pea-shaped growth on right ventro-lateral aspect
Habitat: Ventura River System, Ventura County, California --
lower few miles of the river
Diagnosis: Pseudocystic microsporidan granuloma
Submitter: M. A. Bell

RTLA 1805. Threespine stickleback, Gasterosteus aculeatus

Material: One x-ray positive of "normal" gross specimens and gross specimens with foreshortened vertebral columns
Habitat: Ventura River System, Ventura County, California
Diagnosis: Skeletal anomalies possibly associated with chemical pollution
Submitter: M. A. Bell

RTLA 1806. Emerald shiner, Notropis atherinoides; Sand shiner, Notropis stramineus; Bluntnose minnow, Pimephales notatus; Mimic shiner, Notropis volucellus

Material: Two hundred five gross specimens from the above genera and species

RTLA 1806 (contd.)

Habitat: Ohio River: Pike Island Lock and Dam
Diagnosis: Cubic nuclear inclusions in ganglion cells
Submitter: ORSANCO Survey

RTLA 1807. European flat oyster, Ostrea edulis

Material: One paraffin block; reprint
Habitat: Mali-Ston area of Yugoslavia near Dubrovnic
Diagnosis: Hematopoietic neoplasm
Submitter: P. van Banning
Reprint: (See RTLA 1779)

RTLA 1808. European flat oyster, Ostrea edulis

Material: One paraffin block
Habitat: Paimpol, France
Diagnosis: Hematopoietic neoplasm
Submitter: P. van Banning

RTLA 1809. European flat oyster, Ostrea edulis

Material: One paraffin block
Habitat: Paimpol, France
Diagnosis: Hematopoietic neoplasm
Submitter: P. van Banning

RTLA 1810.1 - 1810.5. Thin tellin, Tellina tenuis

Material: Five microscope slides; 10, 35 mm color transparencies
Habitat: Aultbea, Loch Ewe, Wester Ross, Scotland
Diagnosis: RTLA 1810.1 - Procaryote-like inclusions in digestive diverticulum; RTLA 1810.2 - procaryote-like inclusions in gut epithelium and digestive diverticulum; RTLA 1810.3 - normal male and female; coccidian in ovary; RTLA 1810.4 & 1810.5 - pending
Submitter: J. S. Buchanan
Reprint: Buchanan, J. S. On the Presence of a New Species of Rickettsia Found Together with an Associated Phage in the Digestive Gland of the Marine Pelecypod Mollusc, Tellina tenuis (da Costa). Haliotis. (in press).

RTLA 1811. Coho salmon, Oncorhynchus kisutch

Material: Four microscope slides
Habitat: Reared in fiberglass tanks; water source was river water which was chlorinated-dechlorinated
Diagnosis: Ependymoblastoma
Submitter: J. D. Hendricks

RTLA 1812. Tiger snake, Notechis ater

Material: One microscope slide
Diagnosis: Pancreatic trematodiasis
Submitter: B. L. Munday

RTLA 1813. Metallic skink, Leiopismis metallicum

Material: One microscope slide

RTLA 1813 (contd.)

Diagnosis: Sarcosporidiosis
Submitter: B. L. Munday

RTLA 1814. Rainbow trout, Salmo gairdneri

Material: Sixteen microscope slides; 3 color transparencies
Diagnosis: Malignant lymphoma, diffuse, poorly-differentiated type
Submitter: C. E. Smith

RTLA 1815. Heteropneustes fossilis

Material: Two microscope slides; 4 pieces of a growth; 1 black and white photograph
Diagnosis: Lipoma
Submitter: J. Pal

RTLA 1816. Hawksbill turtle, Eretmochelys imbricata

Material: Tissue: section of small intestine adjacent to stomach -- growth associated with metal fragment
Habitat: Held in captivity at the Waikiki Aquarium, Waikiki, Hawaii
Diagnosis: Granuloma
Submitter: G. H. Balazs

RTLA 1817. Boa constrictor

Material: Gross specimen
Habitat: Captive bred; Los Angeles, California
Diagnosis: Acute necrotizing enteritis
Submitter: I. Gorman

RTLA 1818. Oyster

Material: Twenty microscope slides
Habitat: Laboratory; Narragansett, Rhode Island
Diagnosis: Arsenic induced hematopoiesis
Submitter: P. P. Yevich

RTLA 1819. Timber rattlesnake, Crotalus horridus horridus

Material: One microscope slide; necropsy report
Habitat: Wethersfield Nature Center, Connecticut
Diagnosis: Angiosarcoma
Submitter: E. Jacobson and S. W. Nielsen

RTLA 1820. Corn snake, Elaphe guttata guttata

Material: Four microscope slides; necropsy report
Diagnosis: Extramedullary hematopoiesis versus low grade granulocytic leukemia
Submitter: E. Jacobson and R. E. Brannian

RTLA 1821. Green lizard, Lacerta viridis

Material: One paraffin block; 1 photomicrograph
Diagnosis: Epidermal papilloma containing intranuclear virus-like inclusions
Submitter: E. Elkan

RTLA 1822. Goldfish, Carassius auratus

Material: Growth removed from the right side of the head, near eye

Habitat: Aquarium pet; Texas

Diagnosis: Ichthyematoma (fish scale tumor)

Submitter: N. Herwig

RTLA 1823. Boa constrictor

Material: One microscope slide

Diagnosis: Lipoma

Submitter: F. L. Frye

RTLA 1824. Lampfish (?), Lampanyctus cuprarius

Material: Gross specimen with a growth on the right caudal peduncle

Habitat: South of Bermuda

Diagnosis: Lesion contains multinucleate lavender cells thought to be parasites

Submitter: B. J. Zahuranec

RTLA 1825-1830. Rock oyster, Crassostrea commercialis

Material: Fixed tumor tissue for electron microscopy

Habitat: Nowra (Greenwell Point), New South Wales, Australia

Diagnosis: Papilloma of mantle epithelium

Submitter: P. H. Wolf

RTLA 1831 & 1832. European flat oyster, Ostrea edulis

Material: Six microscope slides

Habitat: Carantec, Brittany, France

Diagnosis: Aber disease (Marteilia refringens)

Submitter: D. J. Alderman

RTLA 1833. Mussel, Mytilus edulis

Material: Seven microscope slides

Habitat: Menai Straits, North Wales

Diagnosis: Hematopoietic neoplasm

Submitter: D. J. Alderman

RTLA 1834. Scallop

Material: Two microscope slides

Diagnosis: Hematopoietic neoplasm versus reactive hematopoiesis

Submitter: R. S. Brown

RTLA 1835. California king snake, Lampropeltis getulus

Material: Two microscope slides; 4 photomicrographs; reprint

Habitat: Walnut Creek, California

Diagnosis: Squamous (versus mucoepidermoid) carcinoma of probable salivary gland origin

Submitter: J. R. Hill

Reprint: Hill, James R. Oral Squamous Cell Carcinoma in a California King Snake. J. Amer. Vet. Med. Assoc., 171: 982. 1977.

RTLA 1836. Nurse shark, Ginglymostoma cirratum

Material: Three microscope slides; 3 paraffin blocks; pathology report
Habitat: Florida Keys
Diagnosis: Adenoma or follicular hyperplasia, possibly of thyroid origin
Submitter: S. Gruber, W. Riemer, and M. M. Sigel

RTLA 1837. Lahonton cutthroat trout, Salmo clarki

Material: Tissue block; 5 microscope slides
Habitat: Pyramid Lake, Nevada
Diagnosis: Carcinoma, probably of ultimobranchial gland origin
Submitter: C. E. Smith

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Margate	1727
<u>Mercenaria mercenaria</u>	1766
Metallic skink	1813
Mexican axolotl	1616, 1674-1693, 1768
<u>Micromya</u>	1787
<u>Micropogon megalops</u>	1708, 1709
Mimic shiner	1806
Mojarra	1719, 1725, 1730
Mussel	1741-1743, 1746, 1833
<u>Mya arenaria</u>	1620-1640, 1694-1703, 1744, 1745

	<u>RTLA Number</u>
<u>Mytilus californianus</u>	1741
<u>Mytilus edulis</u>	1742, 1743, 1746, 1833
<u>N</u>	
<u>Notechis ater</u>	1812
<u>Notophthalmus viridescens</u>	1619, 1673
<u>Notropis atherinoides</u>	1806
<u>Notropis stramineus</u>	1806
<u>Notropis volucellus</u>	1806
Nurse shark	1836
<u>O</u>	
<u>Oncorhynchus kisutch</u>	1713, 1783, 1811
<u>Oncorhynchus nerka</u>	1603
<u>Oncorhynchus tshawytscha</u>	1785
<u>Orgyia pseudotsugata</u>	1645
Oscar	1705
<u>Ostrea edulis</u>	1779-1781, 1807-1809, 1831, 1832
Oyster	1818
<u>P</u>	
Pearl oyster	1796
<u>Penaeus aztecus</u>	1663, 1710
<u>Phenacogrammus interruptus</u>	1784
<u>Pimephales notatus</u>	1806
<u>Pimephales promelas</u>	1653-1657
<u>Pinctada maxima</u>	1796
Pinfish	1716, 1720, 1721, 1729
Platyfish swordtail backcross hybrid	1732, 1733
<u>Platypoecilus variatus</u> x <u>Xiphophorus</u> <u>helleri</u> x <u>X. helleri</u>	1732, 1733
<u>Poecilia reticulata</u>	1723
<u>Pogonias cromis</u>	1662
Porcupinefish	1776
Porgy	1718, 1722
<u>Protoptera alata</u>	1789, 1793
<u>Pterogobius elapoides</u>	1712
<u>Python molorus</u>	1600
<u>R</u>	
Rainbow trout	1615, 1642, 1650, 1786, 1814
Red-spotted newt	1619, 1673
<u>Rexea solandri</u>	1772
<u>Rhodeus ocellatus</u>	1711
Ribbed mussel	1737
Roach	1644

RTLA Number

Rock oyster	1608-1614, 1794, 1795, 1797, 1798, 1825-1830
Rose bitterling	1711
<u>Rutilus rutilus</u>	1644

S

<u>Salmo clarki</u>	1837
<u>Salmo gairdneri</u>	1615, 1642, 1650, 1786, 1814
<u>Salmo salar</u>	1660, 1773
<u>Salmo trutta</u>	1651
Sand shiner	1806
Scallop	1834
<u>Sceloporus orcutti</u>	1602
Sea bream	1731
Sea catfish	1715
Sea star	1607
<u>Siren lacertina</u>	1739
<u>Sistrurus milianus</u>	1604
Sockeye salmon	1603
Soft-shell clam	1620-1640, 1694-1703, 1744, 1745
South African clawed frog	1665-1671, 1769
<u>Spilotes pullatus</u>	1704
Spiny granite lizard	1602
Spot	1659
Spotted sea trout	1726

T

<u>Tanichthys albonubes</u>	1672
<u>Tellina tenuis</u>	1810
Thin tellin	1810
Threespine stickleback	1800-1805
Tiger salamander	1740
Tiger snake	1812
Timber rattlesnake	1819
Trevally	1648, 1649
Two-color parrotfish	1601

W

Weakfish	1605, 1724
White cloud	1672
White sucker	1778

XYZ

<u>Xenopus laevis</u>	1665-1671, 1769
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ORDER _____

CATEGORY: NEOPLASM _____ INFLAMMATION _____ INFECTION _____ PARASITIC _____ TOXIC _____
DEVELOPMENTAL _____ TRAUMATIC _____ NORMAL _____ OTHER _____

CONTRIBUTOR (NAME & ADDRESS):

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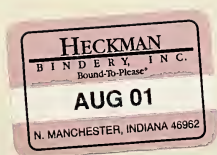
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WHERE COLLECTED _____

DATE COLLECTED _____ SEX _____ AGE _____ STAGE OF LIFE CYCLE _____
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